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TABLE OF CONTENTS

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ARGUMENT

Technologies are always more than the sum of their mechanical parts. Indeed, technologies are entangled in symbolic forms of a social and cultural nature. Technologies also contribute to the construction of new worldviews and new forms of life. Technological imaginaries are far more than phantasies detached from technological innovation. They are at the heart of innovation itself, of the invention as well as of the implementation and use of technology in our societies.

Technological imaginaries are embodied in the technologies themselves, as well as in norms and social and cultural practices. Technological imaginaries are often crystallized in scientific and non-scientific texts, documents, sounds, and images. They are always distributed on an axis that goes from ideology to utopia. At times, they serve to defend and strengthen the social and cultural status quo. At other times, they announce state of affairs that are not yet present – or never will be. In short, the notion of technological imaginaries places technologies within a wider world, made of nature and matter, but also language, images, ideas, institutions, symbols, intuitions, and dreams.

KEYNOTE SPEAKERS

Deborah JOHNSON

She is the Anne Shirley Carter Olsson Professor of Applied Ethics, Emeritus, in the STS Program within the University of Virginia's School of Engineering. Johnson's research and teaching has focused on the ethical implications of computer and information technologies, engineering ethics, STS theory, and technology policy. She has published 8 books including one of the first textbooks on computer ethics in 1985. Her most recent book, Engineering Ethics, Contemporary and Enduring Debates, was just published by Yale University Press (2020). She has also been prolific in writing journal articles and book chapters. Her recent writings focus on algorithmic accountability, humanoid robots, and deepfakes. As a collaborative scholar, she received more than a dozen grants from the National Science Foundation in support of her activities, and she recently completed work on a project at the University of Bergen, funded by the Norwegian Research Council, exploring the social implications of visual surveillance technologies in the news media. Johnson has received the Covey Award from the International Association for Computing and Philosophy (2018) and the Joseph Weizenbaum Award for life-long contributions to information and computer ethics from the International Society for Ethics and Information Technology (2015).

Pieter VERMAAS

He studied theoretical physics at the University of Amsterdam and gained a doctorate from Utrecht University on the philosophy of quantum mechanics. Since 1998, he has been affiliated to the Department of Philosophy at Delft University of Technology where he is doing research into the principles of technology. His subjects of interest within that field are the analysis of the concept of technical function as used within engineering, the description of designing as given by the various design methodologies, and lately the development and impact of quantum technologies. He is currently the president of the Society for Philosophy and Technology.

Bernadette BENSAUDE-VINCENT

She is emerita professor of philosophy at University of Paris 1 Pantheon-Sorbonne. She explores technosciences in their historical, ethical and cultural dimensions. Her current research concerns the regimes of temporality and materiality in the Anthropocene. She has published more than a dozen books and 80 articles and essays. Among her most recent publications, Research Objects in their Technological (2017, co-edited with Loeve S., Normann A., Schwarz A.), French Philosophy of Technology. Classical Readings and Contemporary Approaches (2018, co-edited with Loeve S., GuchetX.)., Carbone, ses vies, ses oeuvres (2018 co-authored with Loeve S.) and Temps-paysage. Pour une écologie des crises (2021).

Carl MITCHAM

He is International Distinguished Professor of Philosophy of Technology at Renmin University of China and Professor Emeritus of Humanities, Arts, and Social Sciences at Colorado School of Mines. Mitcham's disciplinary background is in philosophy, with an emphasis on the philosophy and ethics of science, technology, and engineering. He has authored, co-authored, and edited or co-edited numerous publications (+170), some of which are: Philosophy and technology, with R. Mackey (eds., Free Press, 1972), Thinking through technology: The path between engineering and philosophy (University of Chicago Press, 1994), The Encyclopedia of science, technology, and ethics (ed., Macmillan Reference, 2005), The Oxford handbook of interdisciplinarity, with R. Frodeman and J.T. Klein (eds., Oxford University Press, 2010), Philosophy of engineering, East and West, with Li Bocong, B. Newberry and Zhang Baichun (eds., Springer, 2018), and Steps toward a philosophy of engineering (Rowman Littlefield International, 2020). His numerous and highly valuable scholarly publications have been as much interdisciplinary as disciplinary, especially insofar as he worked to bring philosophy of technology into the interdisciplinary field of Science, Technology, and Society (STS) studies. Recent work has focused on science policy, engineering, and engagement with China.

Sheila JASANOFF

She is Pforzheimer Professor of Science and Technology Studies at the Harvard Kennedy School. A pioneer in her field, she has authored more than 120 articles and chapters and is author or editor of more than 15 books, including The Fifth Branch, Science at the Bar, Designs on Nature, and The Ethics of Invention. Her work explores the role of science and technology in the law, politics, and policy of modern democracies. She founded and directs the STS Program at Harvard; previously, she was founding chair of the STS Department at Cornell. She has held distinguished visiting appointments at leading universities in Europe, Asia, Australia, and the US. Jasanoff served on the AAAS Board of Directors and as President of the Society for Social Studies of Science. She is a member of the Council on Foreign Relations. Her honors include the SSRC's Hirschman prize, the Humboldt Foundation's Reimar-Lüst award, a Guggenheim Fellowship, an Ehrenkreuz from the Government of Austria, and membership in the Royal Danish Academy. She holds AB, JD, and PhD degrees from Harvard, and honorary doctorates from the Universities of Twente and Liège.

Judith SUTZ

She is a Full Professor Science, Technology, and Society and the Academic Coordinator of the CSIC. She is an Electrical Engineer, has a Master in Development Planning and a PhD in Development Socio-Economics. Her main research interests are linked to the design of research and innovation policies, knowledge production and social inclusion, university, and development. At the Universidad de le República, Uruguay, she inaugurated the teaching of science, technology, and society. Her research focuses on the specific conditions for innovation and knowledge production, and their social uses, in developing countries. She is the author of more than 100 publications on topics including science and technology policy, innovation systems in Latin America, social inclusion and inclusive innovation, and innovation systems in small countries.

PRESENTATION & PANEL ABSTRACTS

ADOMAITIS, Laurynas

Nord Security

DRAMATURGY AND NATURAL LANGUAGE GENERATION

As part of the creative process while writing my most recent play “Alice” (premiered on Oct. 23 at Lithuanian National Drama Theatre) I employed the state of the art GPT-3 natural language generating (NLG) algorithm. I gave the algorithm the premise of my story and guided it through the plotline. Surprisingly, it mimicked some of my creative decisions very well. Some of GPT-3’s details and plot twists were ultimately incorporated into the play.

However, there were some parts of the play that I could not get from GPT-3. These types of narrative turns had to do with contextual, historical, and intertextual narratives. Ironically, having learned from all the literature in the world it can barely relate to these contexts. GPT-3 never picked up on the allusion to “Alice in Wonderland” in my play, although that was the premise - a young lawyer, named Alice, enters the mysterious realm of the legal system. I could not get GPT-3 to reflect on the foundations of a democratic state or the reign of terror in Robespierre’s time which were all themes in the play. Several examples from the play are employed to show this distinction.

GPT-3 can write a basic story. That puts pressure on the idea that this type of activity was creative in the first place. With GPT-3 it is going to be very easy to produce a lot of mediocre content quickly. However, I argue there is a unique niche in the intellectually loaded content that uses intertextuality and context as its driving force. It is also likely that the audience's tastes will change, perhaps to something more embedded, and the creative mediums will have to adapt.

AIGNER, Franziska

Centre for Research in Modern European Philosophy, Kingston University London

TECHNOLOGY AND WORLD PICTURES

Starting from a critical analysis of twentieth century thought on technics (Martin Heidegger, Gilbert Simondon, Bernard Stiegler), for which Immanuel Kant came to stand for a philosophy that could not think technics, this talk argues that there is an explicit concept of technics at work in Kant's philosophy. In specific, this talk will engage the posthumously published manuscript that Kant worked on roughly during the last ten years of his life - known as the Opus Postumum (1796-1803). I will argue that the Opus Postumum contains Kant's mature systematic reflections regarding the place and role of technics. I will focus on two encompassing points. On the one hand, I will show that differently to Kant's earlier work, technical-practical reason in the Opus Postumum does not only allow us to cognise the means necessary for a number of contingent ends and to bring forth objects in accordance with the laws of nature. In the very end of Kant's life, technical-practical reason gains a larger systematising and orienting function, culminating in the systematic change according to which the entire sphere of theoretical philosophy will be placed under the jurisdiction of technical-practical reason. Without technical-practical reason, theoretical reason would be in danger of remaining unconcerned with the purpose and end of its cognitions, and thus their orientation, place and application within the world. I will show that the world, here, is then a cosmo-technical system given to reason by itself, which anticipates and thereby first makes possible, theoretical reason and its cognitions. Secondly, I will show that and how Kant prominently included technical-practical reason in his long awaited system of transcendental philosophy, as he embarked on yet another Critique of Reason, only this time, of technical-practical reason (see also Lehmann, Die Technik der Natur, 1938). This talk will thus engage Immanuel Kant's mature thought in order to synthesize his concept of technical-practical reason out of the Opus Postumum, whereby severely challenging the histories of technical thought as told by Heidegger, Simondon, and Stiegler.

ALBRECHTSLUND, Anders

Aarhus University

Co-authors: Astrid MEYER, Stinne Ballegaard AALØKKE

BALANCING PRIVACY, DIGNITY AND SAFETY IN THE USE OF SURVEILLANCE TECHNOLOGIES FOR THE CARE OF ELDERLY WITH DEMENTIA

This paper offers an ethical analysis of a case study focusing on the use of surveillance technologies for the care of elderly with dementia at a nursing home in Denmark. The tendency to wander away from home is a dangerous and recurring event at the care center, and it is crucial for the care staff to manage and, if possible, even prevent this from happening. Care centers try to provide solutions through different methods, including using technologies for monitoring and tracking individuals.

However, a number of difficulties can be identified, not simply concerning legal limitations or technological challenges, but more importantly about sustaining a secure and dignified life for elderly with dementia. How can we create safety and security for citizens with dementia while still protecting their dignity and privacy? The technologies available to prevent wandering may create unwanted knowledge which can violate an individual's privacy (Macklin, 2003). The care staff may also become participants in a surveillance situation in which they risk losing their autonomy at work. As such, surveillance technologies come with ethical ambivalence. As instruments of both control and care, it can often be difficult to draw the line between acceptable and unwarranted surveillance (Lyon, 2001). The use of surveillance technologies thus requires ethical decision, as it creates ethical scenarios which must be considered (Albrechtslund, 2007).

In the paper, we discuss the possible balance between ethical and safety concerns in using surveillance technologies in the care for elderly with dementia, and we investigate approaches to and materials for involving care staff and other relevant actors in considering the ethical dilemmas in the care for dementia patients.

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ALEXANDER, Ian

NYU

CARCERAL CARE AND THE PRISON PAYPHONE

The prison payphone is the primary line of connection between over two million US prisoners and their friends, families, and comrades beyond the wall. Its emergence in the wake of the prison uprisings of the 1960s and 1970s was part of a structural shift in US incarceration whose quantitative aspect is widely known as "mass incarceration." Prison payphones simultaneously deepen the connection between prisoners and their people outside and deny the widespread demand for more in-person visits and greater proximity with home. The qualitative transformations (or reforms) initiated in this period continue through the prison payphone and other carceral media technologies, such as digital tablets, video visit kiosks, and mail scanning operations. Through millions of weekly calls, prison payphones bring the prison into the home, collapsing space and producing what Katherine McKittrick calls "a despatialized sense of place" and "geographic inferiority."

This paper considers prison payphones as a channel for an informal, intimate relative to "telecare" that has long been integral to the production and maintenance of carceral space and time. Through the prison payphone, the work of maintaining relationships and supporting imprisoned family and community members emotionally, psychologically, and financially falls disproportionately on working class women, and especially on Black women. Providing this care is costly, disruptive, and depressing, and access to it is policed, surveilled, and frequently withheld by prison guards. This punitive strategy ranges in intensity from temporary curtailment of phone access to solitary confinement. The paper argues that the contradictions that become sensible in the prison payphone are fundamental to the prison itself. In particular, the prison's contradictory mandates of isolation and connection, surveillance and efficiency, and the provision and refusal of "privileges" are all inscribed in the seemingly mundane technology of the prison payphone.

ALLEBLAS, Joost

Technical University Delft

TECHNOLOGICAL IMAGINARIES AND VALUE CHANGE (PANEL)

Imaginaries play a pivotal role in the development of societies and the technical systems at the heart of these societies. These imaginaries, as performative visions of the future, lead to the creation of new technologies and new innovation pathways as well as commitment to these technologies and pathways. At the same time, however, these technologies and pathways themselves bring forward new visions of the good life, and of the future of society.

The current transition of the energy system, for instance, not only concerns changes in the infrastructure and technologies for the generation, distribution and consumption of electricity. This transition also affects the way people perceive themselves and the society they live in. Changes in the energy system might create new ways of being together, might lead communities and societies to organize themselves differently, and might create new norms and values around these systems and the activities related to them. Technologies, therefore, are creative in this sense as well: not only do they create futures, they create a new present as well.

Sociotechnical systems, such as energy systems, are under constant construction. Nonetheless, these systems see periods of relative stability and periods of rapid change. Our panel wants to address the dynamic between technologies and imaginaries with a focus on value change in periods of instability of sociotechnical systems and innovation pathways. The current energy transition can be seen as an attempt to accommodate an emergent value in society: sustainability. The technologies that embed sustainability and help people realize sustainable practices, themselves lead to new values such as energy justice, energy diversity, and energy democracy. They also lead to new imaginaries, on a national or a more local scale.

As such there might be both tension and support between (emerging) values and imaginaries. On the one hand, values may change, whereas ideals, imaginaries, utopias and ideologies do not. On the other hand, visions of the future may change, whereas existing values and norms do not. This dynamic therefore needs further scrutiny, especially the place and role of technology in this dynamic. Our panel Technological Imaginaries and Value Change will do so.

ALLEBLAS, Joost

Technical University Delft

FIRST AS TRAGEDY, THEN AS FARCE. POLITICAL DISCUSSIONS OF THE SEVERN BARRAGE (1981-2014)

For more than 100 years, tidal energy in the Severn Estuary has been investigated as an option for the UK's increasing energy demand. It remains a salient political issue. Despite the prospect of predictable and reliable green energy, the Severn Barrage has never been realized. Numerous feasibility reports have focused on the problems of tidal barrages, asking for more research into environmental effects. Several explanations for the stalling of the project, and the return to it, exist. Sunk cost effects, escalation of commitment, failed public engagement, and the political model of the UK provide a background for the Severn Barrage as political point of contention. This paper proposes a new, relevant perspective on the repeated failures to realize the Severn Barrage project. It claims that existing technopolitical imaginaries concerning Tidal Power imply a certain political lock-in: the Severn Barrage keeps reappearing on the political agenda because of certain steadfast ideals that persist in the (political) imagination, despite signs that the project is not able to accommodate these ideals nor emergent concerns in society. The paper shows that ideals can both enable and stall action in the transformation of energy systems. The paper analyses three decades of political discussions of tidal power in the UK. It uses Natural Language Processing tools to discern patterns that are related to political ideals concerning tidal power in general and the Severn Barrage in particular. Semantic hypergraphs show which political ideals have dominated political interest in the barrage.

ALOMBERT, Anne

Catholic University of Lille

"OBJECT-IMAGES": BETWEEN TECHNICS AND IMAGINATION

The notion of "object-image", developed by Simondon in Imagination and invention, implies to rethink the relations between technics and imagination beyond traditional oppositions (material/ideal, sensible/intelligible, concrete/abstract, interiority/exteriority), at the psychological and at the collective level. Firstly, "images" are described as intermediaries between the subject and the world, which circulate from inside to outside, through "introjection" (of the external images into the subjects' imaginations) and "projection" (of subjective images onto external objects). Secondly, "object-images" are described as intermediaries between past and future, which ensure the "cultural continuity" of human groups: they are materializations of collective significations, which have to be revived and transformed through cultural activities. Thus, for Simondon, "object-images", which can be technical objects, prosthetic objects or esthetical objects, seem to play a crucial role in individual imagination and in collective imaginaries. I will try to explore this topic and to raise the following question: what are the effects of the digitalization of objects and images on individual imagination and collective imaginaries?

ALPSANCAR, Suzana

BTU Cottbus-Senftenberg, Germany

IMAGINARIES OF AUTONOMOUS VEHICLES

This paper gives a thick description of Waymo's socio-technical imaginaries of autonomous vehicles. In analyzing a prominent developer's perspective, I am going to show that their innovations are not only meant to build a new artifact but to transform mobility – which includes practices of traveling and commuting, infrastructures, the shape of public spaces, community life as well as certain user-technology configurations. The vision of autonomous vehicles has been promoted since the 1920s, but has not been realized until the last 15 years. Waymo's imaginary has already been implemented partly. And, as a Google subsidiary, the company has the power to shape what will be conceived as 'normal traffic/driving' persistently in the near future.

In contrast to traditional car manufactures, Waymo's set up is quite different, in particular in their advertising storylines. They are not developing a new type of car, but they are "building the most experienced driverTM". In fact, Waymo cooperates with car manufactures such as Toyota, Lexus, Chrysler, Jaguar who are providing the carrier-vehicle suiting Waymo's AI-driver-system. Waymo's guiding principles also steam from the internet-culture and the history of AI in contrast to the stereotypical empowerment of a white, male driver. While BMW, for instance, re-imagines the old promise of comfort, pleasure, and power, Waymo targets safety and increased mobility.

I propose taking a closer look at the normative propositions implicated in the developer's perspectives in order to critically assess emerging technologies, for instance why autonomous vehicles are a good thing, why society/customers should adopt them and how they transform traffic for the better.

ALVARADO, Ramón

University of Oregon

REVERSIBILITY AS A DESIGN PRINCIPLE IN AI TECHNOLOGY

Given the growing ubiquity of artificial intelligence technologies in socially consequential contexts, ethicist, researchers and practitioners of these methods have begun to pay special attention to the social implications of their design, development and deployment. For the most part, this attention has focused on the principles of fairness, accountability and transparency as well as on their interplay. Together, these values have been taken to offer significant protection against harms related to these technologies. In this paper I explore the challenges and limitations of each one of these values and argue that a fourth principle, reversibility—defined here as the duty and desiderata to ensure that the actions, effects and harms of an algorithmic technology can be reversed—, should underlie the design, development and deployment of all AI. This is particularly the case when AI is deployed in socially consequential contexts or life-critical settings. In particular I will argue that fairness, transparency and accountability are limited vis-a-vis corrective recourse when reversibility is not underlying their implementation. In other words, reversibility can be understood as a precondition principle for the efficacy of these other values to have any bearing in correcting harms caused by algorithmic technologies.

AMMON, Sabine

TU Berlin, Germany

EXPLORING TECHNOLOGICAL IMAGINARIES: A CONCEPTUAL FRAMEWORK FOR THE EPISTEMOLOGY OF DESIGN MODELS

Overlooked for a long time in epistemology and philosophy of science, design models are highly relevant for the production of knowledge of technological imaginaries. Design models are essential in understand-ing the non-yet-existent and in exploring future sociotechnical worlds. Notwithstanding their relevance in the classical design sciences (e. g. architecture, design, engineering, computer science, management), an ongoing shift in natural and life sciences makes them even more crucial. What we observe in the latter is an "engineering way of being in science" (Galison 2006) and a turn towards "research in a design mode" (Johnson2009).

In contrast to this, the understanding of design models remains very limited to this day. The scattered discussion brought to light conceptual inconsistencies which do not match to standard accounts of mod-els and which inhibit a better understanding of design models. From an epistemological point of view, the direction of fit causes major problems. Design models are said to make statements about how things should be in contrast to models which describe how things actually are. However, design models are not only presentational, but also have a representational character (Ammon 2017, Poznic 2021).

In my contribution I will show how these inconsistencies disappear once we apply a new conceptual framework for design models. Most importantly for design models is their procedural character. Specific for design processes are different phases which come with a change of the ontological status. Planning, producing, using, and remembering artefacts involve different directions of fit of the design model which transform the model's function from a presentational to a representational one, and, once again, to a presentational function. By this, modelling practices transform from being explorative to being prescrip-tive and to being descriptive finally. Hence, investigating design models from the perspective of proce-dural epistemology allows us to understand the specific epistemic nature of design models and to under-stand how design models contribute to a knowledge of technological imaginaries.

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AMMON, Sabine

TU Berlin, Germany

Co-authors: Nele FISCHER, Tim HILDEBRANDT, Juliane RETTSCHLAG

VISION ANALYSIS FOR ETHICAL VISION DESIGN IN AI TECHNOLOGIES: CASE STUDY OF AN INTELLIGENT CARE ROBOT

As emerging technologies, AI applications are faced with the Collingridge dilemma (Collingridge, 1980): In the early research and development process, predictions about the impacts of future technologies are difficult. They only become more reliable once the technology has been extensively developed and is widely used. By then, however, any control or change is difficult, as the technology has already become entrenched.

To escape this dilemma, new methods are needed in order to implement ethical reflection as early as possible in design processes. Being part of the development-process from the very first moment, visions offer a promising starting point. We understand visions as individual and collectively shared ideas that both implicitly and explicitly conceptualize the future technology. Visions thus prefigure the pathways for the creation of a specific technology, thus shaping how it is designed and developed. Hence, the notion of vision is closely related to, but needs to be differentiated from concepts such as technology futures, soci-otechnical imaginaries (Jasanoff and Kim 2015), sociotechnical narratives, and (historical) technology futures (Grunwald 2012).

In our contribution, we are going to present first results of an ongoing case study which analyses visions in the development of an intelligent care robot. Building on methods of vision assessment (Lösch 2017), we propose a conceptual framework of constituting elements of visions. Drawing on a series of qualita-tive interviews, we explore the impact of narratives, metaphors and images, concepts, arguments, values, and emotions for shaping visions. Making these underlying configurations explicit is a first, but crucial step for an ethical investigation of visions. Based on this, we want to show how new design options can be developed based on an ethical vision design.

AMSALLEM, Yaelle

ESCP Business School

ORGANIZING TECHNOLOGICAL UTOPIANISM: THE NEW MISSIONARIES. THE CASE OF SINGULARITY UNIVERSITY

In this article, we aim at bringing an organizational perspective to sociotechnical imaginaries, responding to Jasanoff and Kim's call for an exploration of sociotechnical imaginaries present in nations but also in any type of organization. We examine private organizations that are specifically built in order to conceive and deploy sociotechnical imaginaries based on technological utopianism that we call "missionary organizations". We argue that missionary organizations are institutions that organize the diffusion of their sociotechnical imaginary in order to convert external members, and to build new technological utopian imagined communities. We explore the diffusion of missionary organizations through religious mechanisms. To this end, we build on the literature on religious and political imagined communities. We focus on the strategy deployed by Judaism, both as a Nation and a religion, to build a coherent community despite the transnational diaspora of its members.

We show how an institution like the Singularity University use such mechanisms to organize, grow and sustain a community supportive of its project. The company built by Kurzweil and Diamandis promotes a powerful sociotechnical imaginary based - like a religious imagined community as conceptualized by Anderson - on a sacred text and on a specific language, and is embedded in a particular place, Silicon Valley, along with myths and ceremonies. This process represents a first step in the formalization of the imagined community. The Singularity University strengthens and gathers its imagined community throughout the world thanks to what religious and sociological studies have defined as the outreach. This strategy designed by the leader of the Jewish Habad movement is based on three main ingredients: the existence of a strong leader, the training and the spread of these emissaries around the world.

These two complementary religious based mechanisms shed light on the organizational processes deployed by missionary organizations to configure an imagined community. These new organizations not only use religious mechanisms, but they also sustain a technological utopian if not religious imaginary. We therefore bring to light a contemporary spirit of capitalism based on a profound faith in technologies. Missionary organizations are the embodiment of this mix between transcendental beliefs and capitalism.

APPELT, Dennis

Munich Center for Technology in Society (MCTS)

ETHICAL BUGS. A MORAL METAPHOR FOR ENGINEERING COMMUNICATION

With growing socio-technical entanglement, communication between engineering and ethics gains importance – while due to the increasing complexity of the topics, communication also becomes ever more challenging.

As an important contribution to bridge the gap between engineering and ethics, Coeckelbergh (2010) proposed to approach engineering ethics not by solely using ethical terms in engineering contexts, but by also using engineering metaphors in philosophy.

I would like to introduce a metaphor that is neither taken from engineering nor ethics, but developed to link both worlds: the “Ethical Bug”. An Ethical Bug — an issue of responsibility, society or moral related to software — is to be looked out for in technological innovation processes. The process of doing that is then called “Ethical Debugging”. I suppose that establishing the Ethical Bug in the everyday work life of software engineers would raise awareness and foster precaution for non-technical problems.

Maaßen and Weingart (1995) suggest that deliberately imported metaphors may change in unforeseeable ways, and that it is thus hardly foreseeable in which context they establish. Thus, the metaphor is supposed to be as easily understood as possible, as by reducing the complexity, it is more adaptable and can be used in a multiplicity of contexts.

Naturally, this reduction bears risks, as referring to every non-technical interference into software with one term might lead to certain moral issues being underestimated or neglected. Thus, I propose a case study where the metaphor will be applied as a communication tool in technical education, and its (dis)advantages will be evaluated.

Ultimately, metaphors express imaginaries, and a metaphor promoting awareness for moral issues in engineering might unintentionally reduce those issues to a formalized duty, decoupled from the actual disentanglement of the socio-technical problem - or help to foster an imaginary with greater alertness for avoiding such issues.

ARAVENA-REYES, Jose

Titular Professor

ENGINEERING THE TECHNOLOGY

The Philosophy of Engineering has been opened as a recent field of research very close to the Philosophy of Technology. Although the latter one is older, it seems that it is guided primarily by the realizations of the first one. The historical precedence of the Philosophy of Technology can induce of thinking that the philosophical studies on engineering are a consequence of those originating from technology. However, such precedence could be only historical. When analysed in the strict philosophical domain, it is difficult to argue that engineering's philosophical understanding is direct descendant of the philosophy of technology. When classifying technology studies from defining it as an object, activity, knowledge or volition, technology finds similarities with engineering, due it can also be explained by its objects, activities, field of knowledge and its intentions or wishes. However, unlike technology, engineering expresses directly its action due it has a verbal form that expresses the totality of its becoming as an inventive-productive phenomenon. Unlike the Philosophy of Technology, engineering as verb involves a field of active phenomena, which may ultimately have teleological precedence over the artifacts and the knowledge that characterize it. This work aims to raise arguments to place the Philosophy of Engineering on a slightly different plane than the one that guides the Philosophy of Technology, mainly because the engineering is a living, real and concrete process that produces technology. Thus, technology can find in engineering a dynamic approach that incorporates its different partial characterizations. The proposal is based on the concept of ontogenetics from Gilbert Simondon, which among other things, aims to explain individuals by their individuation processes and not from already constituted individuals. In this work, the process of individuating the technology is described as the itself action of engineering.

ARCHER, Ken

Upwave

AI ETHICS: A CHALLENGE TO THE ETHICAL FOUNDATIONS OF STATISTICS

Projects in AI ethics tend to teach a set of exogenous principles – fairness, transparency, trust - that statisticians and engineers are expected to apply. The message of such projects is that, whereas AI systems may not be morally neutral, those who build them are applying instrumental, calculative reasoning to build towards a design, and must be taught the ethical ramifications of their finished designs. The upshot of this framing of technical work within AI is that AI is an applied science, which allows little room for agency, and that the builders of AI systems have agency primarily in the decision whether to build something. Once that decision is made, however, the agency of the builder is narrowed significantly to the instrumental application of statistics and computer science.

This paper argues that the alarming direction of AI technology will only be reoriented once AI is questioned no longer from the standpoint of ethical principles exogenous to the discipline but from within, using ethical resources internal to statistics. Rather than accept the predominant self-interpretation of those who build major AI systems today as working within statistics that is grounded in axiomatic mathematics and thus purely instrumental, AI ethics research must dig deeper to uncover the competing moral self-interpretations that have animated probability and statistics from its beginnings to the present-day. Such an account would restore the sense of ethical agency that the notion of technology as applied science espoused by educators conceals from engineers and statisticians.

The ideal of universal validity, unknown in the origins of classical probability animated by the recognition of universal rationality as the foundation of civil life, grew from its 19th century eugenicist roots to create the current identity crisis of statistics – as being both objectively free of bias and of social value thanks to its many applications, applications which always require some degree of subjective judgment. The only resolution of this tension is an unmasking of the pretense of such claims to objectivity and an assertion of the former modern ideal of probability as an account and clarification of good sense in the face of chance, so that sensible reason may solidly ground social order and progress. The vision for AI that is illuminated by this moral ideal from within statistics is of an iterative relationship between statistical models and sensible domain experts, co-creating intelligence.

ARORA, Chirag

TU Eindhoven

DUELING, PISTOLS AND TECHNO-MORAL REVOLUTIONS

Dueling as a way to resolve private conflicts, and defense of one's honor, was commonplace circa eighteenth-century Europe and the newly formed United States. Dueling, according to Appiah (2011), reveals an important dimension of honor's relationship with morality – a sense of honor can make a person act contrary to their moral beliefs about how one ought to act. "The man of honor", says Appiah, is not always ''the man of virtue". Appiah's account ultimately posits that the divorce of dueling from honor, which ultimately led to dueling's demise, is an example of a ''moral revolution''. Baker (2019), inspired by Kuhn's account of scientific revolutions, however, disagrees. According to Baker, the demise of dueling was just an instance of ''moral reform'', something that falls short of his definition of a ''revolution''. There is also disagreement about what caused this moral change. Baker posits that public attitudes about dueling changed largely because of the famous duel between Alexander Hamilton and Vice-President Arron Burr, leading to the former's death. Appiah's story of dueling and honor's divorce, contrarily, deems the loss of exclusivity of dueling for the elite class as the main cause. Among others, Hassani Mahmooei & Vahabi (2012) and Piccato (1999) have argued that this ''democratization'' of dueling, which allowed other classes to participate, had a technological cause – use of pistols, rather than swords, as the instrument of duel. Unlike swords, pistols required less training. This presentation uses the case of dueling and these disagreements to answer two broader questions: what makes a moral change ''revolutionary'' and how significant is the role of technology in driving such a change?

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PROPOSITION OF CRITERIA TO EVALUATE DISTORTION IN ENGINEERING LEARNING DOMAINS DUE TO TECHNOLOGY OVERSIMPLIFICATION

The use of technology to mediate engineering education is expanding widely, particularly after the outbreak of the Covid-19 pandemic. Computational simulations and models are abstractions of real-world situations that inevitably reduce the number and complexity of the variables involved and their relationships, simplifying real-world engineering problems to what is calculable and representable by bits. This paper discusses potential misusages of technology in engineering education and proposes a set of criteria to evaluate the degree of distortion technology adoption provokes in a given engineering problem learning domain.

Learning domains can be generous or perverse. In generous domains, the number of options available in a given design decision are limited, and feedback is quick and unambiguous. Perverse domains are the logical opposite. Also, they abound in engineering. Whereas generous domains call for specialized knowledge, algorithmic problem-solving and deliberate practice (“10,000 hours”), perverse domains require generalist knowledge, heuristic approaches to problem-solving, integration of knowledge from areas, analogous reasoning and divergent/lateral thinking. Oversimplifying perverse domains into generous ones is a disservice to engineering education, even though it increases momentaneous student satisfaction and perception of progress, making learning more engaging and consequently transforming technology-mediated programs into a (commercial) success. We discuss requisites and delineate variables and criteria educators can use to create learning materials and situations that avoid changing learning domains inadvertently, hence increasing the odds of better long-term outcomes of engineering education programs.

BABAII, Saeedeh

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THE MEDIATION OF TECHNOLOGY IN QUALITY OF CARE CRISIS

Medical technologies help medical professionals in the diagnosis and treatment of diseases in modern medicine. After the advent of new medical technologies, the physician would not reveal their opinion until the results of the (technologically mediated) tests become interpreted. These tests mediate between the patient and the physician. Consequently, the patients' narrative and personal experience are not a necessary part of physicians' medical practice. This kind of mediation of technology has resulted in existential caring problems, which are called "The Quality of Care Crisis".

The character of modern technology is to decrease the engagement of human beings with nature and with each other (Borgmann, 1984). Technology has reduced the quality of human interactions on three levels and undermined the caring practice:

1. Physician-patient
2. Patient-family
3. Physician-family

Borgmann holds that a good life is one that consists of focal practices. Focal things have a centering force for focal practices that can strengthen, multiply, and stabilize them. We argue that technology could help us alleviate QCC in two ways:

1. As a focal thing
2. Contributing to care practice

Inspired by Verbeek's Cyborg Intentionality, I have categorized three types of caring by technologies (Cyborg Care):

1. Mediated Care

Technology plays a part in the caring practice indirectly. For example, the online forums can bring the caregivers and patients together and facilitate caring relationships

2. Hybrid Care

Human-care and technology-care in an integration, build a new care-giver as a cyborg. For example, technology is used as the extension of human body to overcome bodily limitations. Here, no distinction could be found between human-care and technology-care.

3. Composite Care

Human and technology care for the patient in a collaborative relationship. For example, a care robot who performs caring tasks under a human's supervision

To sum up, I have addressed the role of technology in causing the QCC and then, presented a framework to alleviate this crisis by Caring Technologies.

BABAII, Saeedeh

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GAN; A PROMISING APPROACH TO MITIGATE THE PROBLEM OF BIAS IN AI

The fact that deep neural networks have shown outstanding functionality in a variety of fields has resulted in their expanding use for decision making in social areas. However, the data required to train a deep neural network is extracted from the real world and, in most cases, inevitably infected with implicit bias. Also, AI systems are developed by decontextualized data, while the meaning of data is correlated to their context. When this context is vague for the AI system, it may carry racial, gender, class, etc. biases and might make mistakes in detecting correlations between things which could lead to biased decisions.

In this presentation, we propose an innovative solution based on the Generative Adversarial Network (GAN) to mitigate bias in the outputs of our model. We use two models both of which can be deep neural networks called generator and discriminator.

Unlike models such as decision trees, rule-based systems, etc., deep neural networks are not transparent. Whereas some declare that this non-transparency is the problem of DL, in the most interesting cases, impressive scores obtained by DL cannot be retrieved by altering them into transparent models. We argue that detecting bias in outputs of a neural network eventuates to loss of trust, while transparency is just a means to reach the goal of trust. As some experiments show, an increase in transparency may raise a decrease in trust. We suggest a new method to debias the model and attain trust with no need for transparency.

In addition to transparency, one needs an explanation about what is going on in the model related to the protected attributes. Our suggested method gives a generic way to protect the interested attributes and hence, provides the user with an explanation.

BABICH, Babette

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REVISITING THE MAN IN THE WHITE SUIT: KIND HEARTS AND NANOTECH

There are 'tales' of vaccine tatoos and quantum dots. Some say all this must be fiction but the 'technology,' judging by scientific publications (and investment returns), is an industry standard quite along with today's nanovaccines (these go by several brand names). This talk looks at a morality play: Alexander Mackendrick's 1951 film, The Man in the White Suit, satirizing the relation between labor and factory ownership, and, cliché meets cliché, men and women together with creative aspiration and technoscience. The film includes a 'hermeneutic' moment, involving a certain amount of indirection, deception, and hiding behind curtains conveniently dramatized with the delivery of a new electron microscope. The hero scientist's know-how permits him to pass as an expert technician which in turn enables him to invent the stain-proof cloth of the film's title. Like the 2nd Century AD, Lucian and his 'sorcerer's apprentice,' there is a dramatic fail (predictably, the new, miracle fiber is unstable) such that the heroine can redeem the hero and love can save the day. Today our concerns are with our new nanovaccines (e.g., lipid nanoparticles-based vaccines), 'potentiated' for what we take to be scientific progress and what we also know to be corporate profit.

BAGNOLINI, Guillaume

University of Namur

ANALYSIS OF THE ETHOS OF AN ASSOCIATIVE BIOHACKING LABORATORY, THE MYNE AT LYON

The biohacking movement or Do-It-Yourself Biology emerged in the USA at the turn of the new century with the development of synthetic biology, to spread rapidly worldwide thereafter. It is an amateur scientific movement that can be described as carrying out scientific and technical studies in biology outside the framework of official institutions. Biohackers conduct their experiments at home, in their kitchen or garage, by turning them into laboratories. Through physical interaction in these laboratories and during meetings, as well as communication on forums and websites, communal activities and practices started to take shape. In this presentation, with a historical and philosophical approach, I intend to focus specifically on the collaborative construction of ethos in one biohacking laboratory. In my thesis, I showed that the biohacking movement was shaped by several heterogenous influences resulting in a protean movement. I also showed the strong links that the movement maintains with certain streams of citizen science (especially the most critical and pragmatic approaches) even if they diverge in particular when it comes to their relationship with the institutions. Biohacking also took up some aspects of the business models promoted by Silicon Valley, the culture of computer hackers, and the cyberpunk philosophy. The hybridization of these different cultures and movements ended up creating diverse collectives with varying values, policies and general organizations. The aim of this presentation is to lead – through a critical analysis of biohacking – to a broader reflection on citizens' participation in techno-scientific choices and on policies concerning scientific and technical production.

BAKKALBASIOGLU, Esra

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THE ETHICS OF MODERN-DAY SURVEILLANCE

Surveillance has been employed throughout history. In the 18th century, English philosopher Jeremy Bentham designed a surveillance system called the Panopticon. He argued that the picturesque display of the surveillance tower and invisibility of the inspector would give surveillance an omnipresence and discipline the prisoners (Bentham 1995; Galic et al. 2017). Foucault revitalized discussions around the Panopticon and turned into a theory of power in modern societies, by arguing that state agents could use surveillance to make actors such as patients and pupils internalize discipline (Foucault, 2006). In post-panoptical surveillance studies, Deleuze added that with powerful institutions shifting from states to private companies, the goal of surveillance has also shifted, from discipline to control. Private actors have started to use data collected from individuals for economic profit (Deleuze 1992; Galič et al. 2017).

Developments in technology including artificial intelligence (AI) have made physical surveillance easier, cheaper, and faster. Cloud-based AI-powered surveillance systems can trace connections across multiple data sets collected at different times and places, through different technologies. While there are multiple beneficial applications of AI-powered surveillance systems, such as providing real-time alerts on accidents, analyzing footage to solve crimes or to identify threats, these can also cause significant harms. There are valid ethical concerns about the changing scope, content, speed, and place of surveillance as well as the threat AI surveillance can pose to civil rights and freedoms.

Building on a synthesis of the existing surveillance literature, this paper argues that contemporary technologies diffuse production and control of surveillance tools to new segments of the population, such as technology developers, who are now faced with having to make ethical decisions. We also discuss how different AI-based surveillance systems are being used in different industries and across the globe, the ethical concerns of such technologies, and considerations for responsible development.

BARRET BERTELLONI, Maud

Sciences Po

THE "TECHNOPOLITICAL MOMENT": RETURNING TO THE QUESTION OF WHAT IT MEANS FOR TECHNOLOGIES TO HAVE POLITICS

The politics of technologies is frequently mentioned in media and communication studies, which understand technologies as the vehicle of power dynamics and of politics at broad. In dealing with the politics of algorithms (Bucher, 2018), infrastructure (Larkin, 2013) and AI (Crawford, 2021) amongst others, the question of what it means for technology to have politics, however, often goes unaccounted.

Drawing from the works of Langdon Winner, Andrew Feenberg and of the authors of the sociology of translation, this paper seeks to outline the historical-conceptual setting that occasioned the characterizing of technologies themselves as the locus of politics and presents the competing accounts of technopolitics proposed by the authors.

Taking distance from the "humanist" critics that set the spheres of technology and meaning apart and approaching the study of technologies in an empirically grounded fashion (Achterhuis, 2001), the authors combine the insights of STS, concerning the social origins of technologies and their interpretive flexibility (Bijker and Pinch, 1984) and of the "turn towards things" concerning their mediating role in human action (Verbeek, 2000). As such, they can be read as similarly seeking to develop a form of reflexive and immanent politics that take place with and within technology.

Their conceptions of technical politics, however, substantially differ. For Latour (2004) and Callon (2001), they consist of the processes of stabilization and destabilization of technical actants and their networks, as part of the task of composing a common world. Feenberg describes them as the hegemonic imposition of a "technical code" and its challenge through rearticulation as an ever-present potential for immanent resistance (1999, 2007). Finally, Winner analogises them with legislative acts (Winner, 1986) - though his reified conception of technology (Winner, 1984; Woolgar, 1991) in fact prevents him from fully articulating his "politics of artefacts". By situating the emergence of technopolitics and sketching some of its different conceptions, this paper aims to provide critical media studies with a more grounded understanding of technological politics.

BATTISTA, Francesca

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BEYOND ROMANTIC SUBLIME: EXPANDING THE PERCEPTION OF WESTERN TECHNOSCIENCE DURING THE ROMANTIC ERA.

In the last decades, Literary studies have problematized and widened the interpretation of the Romantic era as an inhomogeneous cultural moment in Western culture. The inputs from this field questioned the imaginary built in the 20th century around the Romantic perception of science and technology. The STS field has not been, so far, receptive to this shift and its scholars mainly matches, in a sort of dichotomy, Enlightenment with a specific meaning of rationality and Romanticism with a specific interpretation of sublime. Bridging Literary Studies and STS adds other possible ways of understanding the relation between technoscience and Romantic intellectuals, alternative to those formulated in the nineties. Close readings, through mixed lenses, of Blake and Wordsworth provide examples of such new interpretations.

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LISTENING TO (BLOCKCHAIN) TECHNOLOGY AS NARRATION

Technology emerges in accordance with historically changing ideas about what is considered as desirable technology; while the beliefs and actions of certain groups or organizations—whether entrepreneurs, programmers, users, social activists, or others—may carry more weight and benefit from institutionalization than others. However, as seen from the perspective of social studies of science and technology (STS), it is insufficient to view technology solely as a consequence of interactions between social groups. Rather, it can be assumed that technology itself influences the understanding of the social world that we inhabit. Not least with industrialization, technology has evolved with humans in many obvious ways that are difficult, yet analytically interesting, to separate. Technologies, as they are addressed here, are part of the mediation of social realities and thus vehicles for change: that is, how we are with each other and how we relate to the natural environment is co-shaped by technologies, both on the basis of their materiality (even its "agency") as reinforced by postphenomenological theories and the meaning associated with that materiality as emphasized by STS views. The configuration of materiality and meaning opens up not arbitrary but specific social worlds. Just as the creation or use of handguns presupposes certain "necessities" that handguns simultaneously symbolize, this paper will explore for blockchain technologies, in particular the "irreversibility" of transaction histories—that each newly added transaction refers not only to its own specifics, but to all previously made transactions—to what extent such a supposedly rigid or definite feature could provide a different experience in terms of securing (the imagination of) a predictable future in comparison to more dispersed, possibly disappearing transaction histories. The conceptual underpinning to "listen to" and question blockchain's narrative mediation will follow and extend Ricoeur's hermeneutic approach.

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AUTHENTICITY AS AUTHENTICATION THROUGH TECHNOLOGY

Constructionist approaches consider authenticity as a social creation without any pre-given factuality or reality, whereas essentialist approaches claim that authenticity is not constructed but rather found or regained. In order to move beyond the essentialist-constructionist dichotomy, we hook into the idea that authenticity and inauthenticity are the result of culturally informed negotiation processes (Vannini and Williams 2009). Instead of understanding each approach as a distinct conceptualization and type of authenticity, we will reinterpret them as three different manifestations of authentication, each one representing a different 'authenticity ethic' and moral challenge for individuals and societies. Authenticity is often invoked as a method of social control or a mark of power relations: once an object, person or place is constructed as authentic, the process of representation is objectified and used to validate the object, person or places' very own manifestations and performances. New and emerging technologies (and especially data driven tech) have the capacity to conceal these power relations and influence and dominate authentication processes. This requires a new diagnosis for understanding how a critical relation to present-day authentication processes is possible. After discussing how authenticity can be understood as an interactive negotiation process, we turn to the normative question of what constitutes "good" and meaningful authentication processes. This brings us to the central question of our article: how can processes of authentication and de-authentication contribute to a critical formation of the self and of societies, against the backdrop of new and emerging technologies? We will argue in favor of a pragmatic approach of authentication and discuss the importance of creating space in authentication processes.

BELTRAMINI, Enrico

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TECHNOLOGICAL IMAGINARIES: CHRISTIAN UNMANNED MISSION BEYOND THE SOLAR SYSTEM

Technological imaginaries announce state of affairs that are not yet present – or never will be. In this essay I discuss the possibility of Christian unmanned interstellar missions.

In a speculative engagement with the option of interstellar flights, the existence of extraterrestrial life, or extraterrestrial intelligence, would have no serious impact on Roman Catholic missiology. For example, during the five hundred years that the problem in its modern form has existed in people's minds, the Vatican has not issued a single papal bull on the subject. But what if the interstellar spaceship is operated by posthumans? What does missiology have to say on this option? What does missiology have to say on a speculative scenario of posthuman interstellar spaceships leaving planet Earth? In this paper, I explain how the conversation on space flight has reached this point in the United States, and why it is relevant to missiology. I argue that such a question is relevant for technology as well as missiology. I acknowledge the change of paradigm in space travel, from "space exploration" to "space civilization" and I investigate the implication for evangelization. I discuss the option of a coupling between space travel and Artificial Intelligence as a means to operate interstellar flights. As an output of this merger, the terrestrial man is replaced by the cyber, a posthuman species who embarks on multi-hundreds years travel to evangelize alien species. I conclude that this option must be investigated theologically.

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THE RISE OF TECHNOLOGICAL IMAGINARIES AROUND SMART CITIES, BETWEEN UTOPIA AND DYSTOPIA

The place of technological imaginaries remains pivotal in society and social representations, both according to their influence on everyday life, and at an urban level in cities. Imaginaries have always guided our lifestyles, as they have been an inspiration providing a continuity of innovations, strongly influencing urban practices. Technological imaginaries reflect somehow projections of certain degrees of reality, shaping aspirations or individual fears towards technology. The materialization and spatial aspects of technological imaginaries are frequently referred to as a glorified representation of technology reflecting multiple ideals, and featuring at times drastic situations of cities invaded by technology taken to automation and transhumanism extremes.

The study reported herein aims to develop a critical analysis of the Smart City model as a technological center through architectural and urbanism angles. Partly conceived by the power of images, technological imaginaries refer to the ability of giving existence to concepts and ideals theoretically devoid of them, leading to designing a set of Smart City representations.

Displaying the importance of technology influence on building ideological Smart City concepts and to its driving utopian and/or dystopian ambivalence is one goal of this study. The rise of technological imaginaries around Smart Cities swings between “techno-optimists” and “techno-pessimists” opinions that unite however on the fact that cities are becoming "e-topias", places where virtual and physical dimensions merge. Visions around integrating technologies within urban space reveal this duality and dichotomy.

The approach aiming to highlight the importance of technological imagination in the conception of smart cities discusses its intrinsic relationship with utopia. This leads to an exploration of possible(s) for technological innovations, frequently shifted by integrating dystopian inclinations or counter-utopian aspects of the digitized and “hyper technicized” city.

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HORIZONALITY AND TECHNOLOGICAL MEDIATION

Following the empirical turn of philosophy of technology, its seems that the way technologies mediate human-world relations is a secured domain of philosophical questioning. In particular, phenomenological modes of questioning into technological mediation have become influential in informing design, engineering and ethics practice. Focussing on the structures of human intentionality, such investigations unfold how technologies shape the latter through a mixture of pragmatism and existential phenomenology. However, contemporary technologies such as machine learning complicate this neat image. How can phenomenology still inform empirical analyses of technological mediation, when the technologies involved are intrinsically irreducible to what is empirically given? I argue that the phenomenological notion of horizonality offers a suitable problematization. However, the relationship of horizonality and technological mediation is so far not exhaustively articulated. In this contribution, I will combine technological mediation theory with Husserl's world-horizon and Heidegger's ecstasies through philosophical anthropology. This yields an understanding of horizons as always already technomorph, and technological mediation as a process of commensurating the horizons of the "given-as" with the horizons of the "given-for." The implications for analyses of contemporary technologies are twofold. First, the manifestation of artefacts as 'smart' allows for an explication of the historical-ontological structures of such an understanding (i.e., their horizonality). Second, while often removed from the empirical manifestation of human-technology-world relations proper (i.e., "as"), technologies such as algorithmic curation or automated photo retouching embed the former within an adaptive continuum of sense (i.e., "for"). This second implication is key: while causality alone is inexhaustive to account for phenomenomological experience, intentionality as understood in technological mediation theory is also not exhaustive for the qualitatively distinct phenomena of absent embeddedness. Horizonality is thus a key combinatory analytic dimension for understanding emerging modes of technological mediation.

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THE GENDERED IMAGINARY IN RETRO FUTURISTIC UNIVERSES OF VIDEO GAMES

The retro futurist movement, and more precisely the cyberpunk movement, is a fairly recurrent theme in the world of video games. Apart from the fact that they share a common basis, namely cybernetics, cyberpunk imagines parallel universes which are expanded on the foundation of real world history. In fact, through these imaginaries, which cultivate a fascination with machines and a utopia of technological conquests, questions related to individual liberties, dehumanization, body change (particularly concerning gender) and transhumanism are addressed.

Furthermore, video games are a media tool, considered in society as a cultural and communication device. Although they can affect gamers, creating unique experiences influenced by their practices over time, the poetry of their narrative seems to remain precocious and immature, especially when compared to other narrative venues that have older forms of expression, such as cinema and literature (Bizzocchi and Tanenbaum, 2013). However, the imagination that games provoke in gamers and the interactivity they impose plunges them into the position of spectactors (Weissberg, 2000), thus participating in an educational process that engages the body (Triclot, 2011). Indeed, when a gamer controls their character, part of the videogame writing process is handed over to them. In fact, it can be presumed that there is an intertwinement between the two, a network which enables a form of cross-influence : the player determines the details and the outcome of the game by intervening in the course of the story, the game imbibes the player, subjecting him to an educational experience.

Thus, it seems interesting to discover how this interactivity operates in video games built on retro futuristic universes and aesthetics, when it comes to gender.

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Co-authors: Xavier GUCHET, Sacha LOEVE

IS THERE A THINGLY TURN "À LA FRANÇAISE"?

The recent publication of a collective work titled French Philosophy of Technology. Classical Readings and Contemporary Approaches has demonstrated the existence of a dynamic, albeit heterogeneous, community of philosophers in France who tackles technology from the perspective of a longstanding and original tradition whose main characteristics are: i) a close connection between history and philosophy, with a focus on the temporalities of technology, ii) the prevalence of the anthropological approach to technology whether it be social anthropology or paleoanthropology (in the latter perspective, technology appeared deeply anchored in biological life), iii) a focus on technological objects that we characterize as a "thing turn" à la française, iv) the dignification of technoscience as a philosophical category, and v) a pervading concern with ethical issues based on the anthropological interpretation of technology and quite distinct from current trends in applied ethics.

Focusing on i), iii) and iv), we will argue that the original positioning of the French philosophy of technology with regard to the "thingly turn" might raise vivid debates relating in particular to ecological concerns.

BERGEN, Jan Peter

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DIFFERENTIATING DIFFERENCE: CATEGORIZING RELATIONS WITH TECHNOLOGICAL QUASI-OTHERS

Ongoing technological development (e.g., in user-oriented AI, smart robotics and ubiquitous computing) facilitates the creation of artifacts that are exceedingly interactive. As such, our lifeworlds have become inhabited by an increasing number of increasingly active technological 'quasi-others'. Given these developments, it is remarkable that Ihde's notion of alterity relations has not featured more prominently as an analytical tool in studies of technological mediation (with notable exceptions). One conceptual reason for this might be that, according to Verbeek, alterity relations are not even mediating since when engaged in them, the subject's intentionality is not actually mediated by the artifact but rather directed at the artifact itself. However, such a 'technical' reason is hardly sufficient to explain alterity relations' limited scholarly uptake. In this paper, I propose that there is another, more practical reason for alterity relations not receiving the systematic study they increasingly deserve. I.e., I argue that we have heretofore insufficiently appreciated the sheer variety of alterity relations one might have with technological artifacts, which in turn precludes systematic categorization and study. In light of this, the paper lays out a framework for categorizing alterity relations. This framework is built around a unique feature of alterity relations: the presence of the technology as quasi-other before the experiencing subject, and the concomitant effect of these relations having a component that is also subject-oriented rather than world-oriented. As such, it identifies relations according to their experience of self (subject-affirming, subject-effacing or subject-critical) and experience of (quasi-)other (alterity-affirming, alterity-assimilating or alterity-denying). Lastly, the paper uses the framework to categorize both classic examples of alterity relations (e.g., Ihde's spinning top or video game opponent) as well as more recent ones (e.g., cell phones, virtual assistants or humanoid robots), and discusses the usefulness of the framework for both philosophical analysis as well as design.

BERKEY, Brian

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AUTONOMOUS VEHICLES, THE ETHICS OF DRIVING, AND THE MORAL LIMITS OF MARKETS

Autonomous vehicles (AVs) raise challenges for the ethics of driving standard, non-autonomous vehicles, and for the ethics of markets in standard vehicles. Driving is presently regarded as a paradigmatic example of permissible risk imposition. We argue, however, that if AVs become equally available and reliable, as well as comparable in cost to and safer than standard vehicles, then driving a standard vehicle rather than riding in an AV will become analogous, morally speaking, to driving drunk rather than driving sober in present conditions, and therefore impermissible. In addition, we argue that a ban on the production, sale, and purchase of new standard vehicles for use on the road would also become justified. We make this case in part by highlighting that the central reasons typically offered in support of state-mandated vaccination will also support mandating AV use in conditions in which AVs are safer than standard vehicles. Finally, we discuss some of the implications of our argument for the obligations of vehicle-producing firms.

We proceed in the paper as follows. First, in section 2, we describe the central empirical conditions that would have to obtain in order for our normative arguments to imply that driving standard vehicles has become impermissible, and that banning markets for such vehicles is justified. In section 3, we present our argument for the view that when the relevant conditions obtain, driving a standard vehicle is impermissible. In section 4, we appeal to some important similarities with the case for state-mandated vaccination in order to argue that when the conditions that we describe in section 2 obtain, the state will be justified in banning the production and sale of standard vehicles. Finally, section 5 highlights some central implications of our discussion, in particular for the obligations of vehicle-producing firms.

BIBER, Lee

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METAPHORS OF THE BODY IN BIOHACKING

Our interest for the biohacking and biohackers phenomenon led us to explore audio and visual material produced by major figures in the 'Biohacking' sphere. In the exploration of their narratives, our analytical focus was directed on the implicit metaphors (Lakoff and Johnson, 1983) that organize their concepts of body. Our hypothesis is that their concepts of the body are different or singular, giving raise to diverse values, visions and practices of Biohacking. In this presentation, we will work on three main figures: Kevin Warwick, Lepth Anonym and Amal Graafastra since they represent contrasted approaches of the Biohacking. Kevin Warwick, professor at the Coventry University, represents the 'scientific or instutionnal' approach of the Biohacking. He implanted himself with an RFID chip on the 24th of august 1998. He was the first individual to implant himself and to record the implantation process done with the help of a fellow doctor. In his journey, Kevin Warwick approaches the body as a ground of experimentations that science can improve or augment in order to make humans discover unprecedented never-before-lived experiences. Left Anonym is an activist positioning herself in opposition to the institutional science and transhumanism. She belongs to “self-made” or “garage” biohackers. Lepht Anonym conducts a blog on which she shares all of her biohacking experiences. For Lepht Anonym, biohacking should be accessible to everyone. She implants herself with RFID and NFC chips as well as magnetic implants to seek new senses. She considers biohacking as a “DIY” or “Do-it-yourself” activity and her body as a workbench. The last one is Amal Graafstra. Author of the book “RFID Toys”, he also implants himself with different chips. After several experiences, he created the internet shop “Dangerous Things” whose slogan is to “Biohack the planet!”. He also considers himself as a "do-it-yourselfer” and wants to become a "cyborg". For Amal Graafstra, those implants are here to enhance the human body. The difference with Lepht Anonym is that he considers the body as a business investment and himself as an “entrepreneur” in Biohacking.

BILLION, Arnaud

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NORMATIVE CORPORATE SOCIAL RESPONSIBILITY TOWARDS THE PITFALL OF IMPLEMENTATION

Much effort is made so that Information Technologies (IT) comply with Corporate Social Responsibility (CSR) values. In the digital realm, this takes particularly the form of algorithms deemed to reflect generally formulated legal and CSR standards, such as transparency and inclusion.

Yet, the main goal of IT remains to actualize solutions on the basis of the advancement of theoretical knowledges, in a perspective of unlimited progress. Such a purportedly implementation of models, built by deduction, positions science as the source and legitimation of innovation in general, and CSR as a way to bring conventional limits to it.

However, model-based innovation is necessarily a risky bet on models' reliability : IT engineers may never find a definitive meta-model complying with CSR values. Hence, concrete unexpected inconvenience occur in relation to limits of knowledge silos and models. For instance, prescriptive CSR does not help when it comes to anticipate impacts, foster virtuous cycles, or simply understand what to do with IT.

Therefore, IT engineers and their employers need to change their expectations towards science and CSR : no theory, model, method, or conventional prescription can solve socio-environmental issues.

Instead of trying to encode values into software programs, engineers would benefit from lawyers' experience with prescriptions. Lawyers mitigate the deduction of solutions from normative formulations by resorting to the aristotelo-thomist approach. In this way, the enquiry about a fair solution mobilizing practical knowledge and a sense of justice, can produce reasoned and arguably suitable insights (instead of valid per se prescriptions.)

Under this stance, IT engineers could learn to recognize, for each specific situation, the objective conditions of development of CSR-compatible innovations. In a way, they would discuss with nature as a partner, instead of obeying blind theoretical models. They may benefit from this dialog for bringing their contributions to the real ambition of CSR, which is sustainability more than unlimited development.

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University of Naples L'Orientale

A FANTASY OF DISEMBODIMENT

Our contemporary experience of technology is characterised by imaginaries of perfectly seamless interaction, underpinning the almost magical automation of everyday life. At the heart of this cultural understanding of technology, rests a contemporary mythology of the technical, a fantasy of pure, flee-flowing, disembodied information. This permeates our language and culture, resulting in a systematic tendency to obscure the materiality of machines, which affects both the understanding of our relations with technical infrastructures, and the development and implementation of technology in our societies. This fantasy of pure disembodiment is manifest in a number of ways, from sci-fi imaginaries to product design and user experience, from Norbert Wiener's 1950 suggestion of the possibility of telegraphing a human being, up to today's fantasies of collective intelligence enabled by the combination of neuroscience with Silicon Valley's technological innovation.

This paper aims to critically analyse these cultural fantasies as historical constructions, based on an imaginary dichotomy between matter and information, that can be mapped onto an older dichotomy of spirit and matter. We'll see how this bifurcated view of reality permeates contemporary discourse, from transhumanist literature to industry and media narratives, with promises of immaterial existence and, ultimately, immortality, where human essence is seen as abstract information encoded into a biological body, but not intrinsic to it, and therefore separable from its material instantiation. In order to do this, we'll draw from a body of theory and practices that make the materiality of media technologies available to critical inquiry; from Claude Shannon's mathematical theory of information, to Katherine Hayles' ideas of virtuality, and Fuller and Goffey's proposal of "evil media", through other contributions from media and technology studies, critical posthumanism, and recent debates on digital subjectivity. By critiquing false dichotomies and essentialist oppositions, the paper will try to establish a material(ist) continuity between the signifying automaton of cognition and the hybrid materiality of the animal and machinic body, moving beyond the philosophical phantasm of the abstract disembodied self.

BLOK, Vincent

Wageningen University & Research

TECHNOLOGY AT THE END OF THE WORLD (PANEL)

The advent of the Anthropocene compels philosophical attention to nothing other than the end of the world. For Clive Hamilton, the alarming findings of Earth System Science tear the ontological fabric of the known world apart, thus occasioning new questions regarding the nature of the world and the kind of human beings at its centre (Hamilton, 2017). More radically, Timothy Morton declares the end of the world as the meaningful background against which inner-worldly beings stand out, thus inevitably inaugurating a flat ontology in which all beings are enmeshed in an intricate play of inter-objectivity (Morton, 2013). On the other hand, philosophers like Jean-Luc Nancy summons philosophy to the task of thinking a new creation of the world to surmount the comprehensive dominance of calculation, economy, and technology witnessed in the "global unworld" of the Anthropocene (Nancy, 2007), while others reflect on new alliances of Earth and World (Blok, 2019). These motives specifically entreat philosophy of technology. Not only is the Anthropocene a profoundly technological or techno-scientific phenomenon (Lemmens et al. 2017), but philosophy of technology generally concerns the relation between technology and world, whether this relation is understood in terms of mediation and world-shaping (Ihde 2012; Verbeek 2005), techno-geographic milieus (Simondon, 2016), or according to an ontological consideration (Zwier & Blok 2017; 2019; Blok, 2017). This panel accordingly aims to examine how philosophy of technology should respond to the end of the world.

BLOK, Vincent

Wageningen University & Research

NATURAL TECHNOLOGY: DEVELOPING MEETING POINTS BETWEEN ENVIRONMENTAL ETHICS AND PHILOSOPHY OF TECHNOLOGY (PANEL)

An increasing sense of urgency emerges in the light of unprecedented environmental challenges as we are moving deeper into the Anthropocene. Classical dichotomies between nature and technology do not fit any longer. In this situation, mutual learning between philosophers of technology and environmental ethicists is necessary. That this does not happen more than it does is regrettable. However, the situation is beginning to change, and there are laudable efforts to bridge the gap. In order to contribute to the continued bridging of the gap between environmental ethics and philosophy of technology, we discuss the following entry points during the panel:

- Environmental ethicists, not least in the American tradition have had a strong focus on the value of wilderness. The interest in a non-anthropocentric axiology among many environmental philosophers might have contributed to a lack of interest in technological artefacts, including living ones.

- The notion of technological hubris, appearing for instance in discussions about geoengineering and agricultural biotechnology

- Different views on the ontology of artifacts might imply different views on the ethical status of those artifacts.

- In parallel to the pessimism among many environmental philosophers, there are examples of technological optimism and a remarkably strong interest in science-fiction-like technologies like some instances of geoengineering, terraforming of other planets, and rewilding through new biotechnologies. These new technological systems and solutions create new kinds of risks to deal with, and new distributions of burdens and responsibilities.

- The role of technology in achieving environmental values. Several paths are possible towards the same goal and involve different notions of nature, justice and responsibility, and how do approaches such as Value Sensitive Design and Responsible Research and Innovation deal such issues?

BLOK, Vincent

Wageningen University & Research

SPECULATIVE ECOLOGY AS INNOVATION OF WORLD

The emergence of the Anthropocene disrupted classical dichotomies that helped us to understand the human relation to the natural environment. In the Anthropocene, humanity can no longer be conceived without the natural and technological environment on which it depends, while Earth´s planetary population by humans makes it impossible to conceptualize nature without human cultivation, preservation and development: in the Anthropocene, planet Earth appears as an 'interior space' without any possible position outside of it (Sloterdijk, 2009), forcing "us to acknowledge the immanence of thinking to the physical" (Morton, 2013: 2). For post-humanists like Morton, this calls for the end-of-the-world in the Anthropocene. Although we acknowledge that the Anthropocene calls for a new responsibility of humanity for the damage we have caused, we depart from current debates between the post-humanist position in which no special role for human existence is left (Blok, 2021) and the new anthropocentric position in which human being becomes a super-agent that competes with the great forces of nature (Hamilton, 2017). We ask for the human condition in the Anthropocene and argue that this human condition has to be found in speculative ecology as innovation of the world that articulates our being-in-the-Anthropocene. This conception of the human condition has significant consequences for our understanding of technology, which will be sketched and illustrated in the paper.

BODINI, Jocopo

University of Jean Moulin Lyon 3 - Collège des Bernardins

IMMERSIVE RESONATIONS: BUILDING AN AURAL MODEL FOR IMMERSIVITY

The technological imaginary of immersivity is mainly built upon visual culture: visual technologies and metaphors are at the core of the 2WM applied to immersive experiences.

In this talk, we argue that the dualism characterizing this model could be indeed a consequence of a predominance of visuality: already in his critic to platonism – as the paradigmatic form of dualism characterizing Western ontology and culture – Deleuze points out the visual roots of such image of thought, based on the visual metaphor of copy. Furthermore, in order to go beyond a series of dualisms dominating Western culture as visual culture, Erlman opposes to the visual metaphor of reflection the aural metaphor of resonation.

According to Erlman, we argue that an aural approach to immersive experiences could allow us to think them in non-dualistic terms, and therefore to go beyond a series of dualisms typical of current 2WM, such as: mediated/unmediated; internal/external; attention/distraction.

At the aim of building an aural model for immersivity, we will analyse three main sound-based experiences related to three fundamental features of immersivity:

Presence: vocal interactions in digital environment, from vocal notes to vocal interactions in videogames;

Orientation: the role of Soundscapes (in VR, AR and XR, or ASMR videos) and of guiding Voices, from GPS to Acousmatic voices, as a symptom of the excessive nature of immersivity;

Stimmung: the soundtrack effect produced by the constant presence of music (from Spotify to Instagram stories), setting the affective tonality of our experiences.

BOERSMA, Keje

PhD candidate Philosophy, Wageningen University

GRASPING THE ANTHROPOCENE. GENE DRIVES AND THE LIMITATIONS OF POSTPHENOMENOLOGICAL PHILOSOPHY OF TECHNOLOGY

Environmental philosophy and philosophy of technology share a difficulty in grasping the anthropocene as a phenomenon epitomized by past and current scientific and technological intervention. Both fields tend to focus on one side – nature or technology - of what the notion of the anthropocene turns into a single defining normative and ontological issue: the redefinition of the human-nature relation at the hands of science and technology. Importantly, the one-sidedness inhibits us to address specific contemporary scientific and technological developments in light of this central issue. The question therefore becomes how we can bring the two fields together in ways that do allow for this overarching perspective. I provide one such avenue by looking at gene drive technology through the lens of postphenomenological philosophy of technology. I hereby ask the question: what does this approach reveal about this particular technology, and what does it fail to see, if we take the idea of the anthropocene as a redefinition of the human-nature relation seriously? I suggest that there are two particular domains where postphenomenology has trouble. First, gene drives intervene into natural processes, thus eluding the phenomenological analysis in its focus on human experience. Second, viewing gene drives as an instantiation of a wider range of anthropocene technologies, we notice how the wider context of the anthropocene epitomized by interventionism escapes the phenomenological analysis. An environmental-philosophical concern with nature and earth helps reveal these limitations, thus providing an indication of where the fields should meet.

BOSSCHAERT, Mariska Thalitha

Wageningen University

Co-author: Vincent BLOK

DESCRIPTIVE BIAS AND THE NEED OF SPECULATION IN PHILOSOPHY OF TECHNOLOGY

At the end of the 20th century several philosophers of technology were unsatisfied with the approach of philosophers as Heidegger and Ellul, also called the traditional philosophers of technology. Their main point of criticism was that they did not describe technologies in detail, and because of this, they did not understand them well enough in order to theorize about them. The critical philosophers thus did not want to theorize about technologies based on speculations. However, there has hardly been a discussion about how to avoid being too speculative in the philosophy of technology. Instead of elaborating on this question, philosophers of technology saw the solution in a turn to detailed descriptions of concrete technologies, which is called the empirical turn. These philosophers expect that such descriptions form a solid basis to understand technologies, and because of that, they function as if they were neutral. This is the descriptive bias, a dominant way to describe technologies. However, by focusing as strongly on the description of concrete technologies, philosophers loose sight of structural features, like digitization, and as a result, they still risk getting only a limited understanding of them. This means that, even though their descriptions do generate interesting new understandings, this turn is not the full solution to the problems that empirical turn philosophers found in the work of the traditional philosophers of technology. Therefore, in this article we will focus on the question of how to avoid a descriptive bias in philosophy of technology and argue for a rehabilitation of empirical informed speculation on structural features involved in new and emerging technologies. In this article we will first distinguish between various types of speculation and subsequently evaluate these types. We will conclude with a proposal of how to combine description and speculation in the philosophy of technology.

BOTHEREAU, Benjamin

HT2S/CNAM

MASTERING THE LIGHT : A BIOGRAPHY OF THE 18TH C. STREETLAMP. MONITORING THE CITY OR LEADING THE REVOLUTION

Bringing together a wide range of archival sources, as diverse as technical drawings of inventions or political caricatures, this paper presents a biography of the 18th century Parisian streetlantern. The entwinement of the innovation with narratives and cultural discourses structures its imaginary: its representations in pre- and post-revolutionary France shows how the technology of the streetlamp became embedded in cultural discourses coopted by diverse political groups.

I will first present the inscription of its technical imaginary as a rationalized way of mastering the beam of light by using concave metal reflectors (réverbères). Through a scale game, I will show how this control over the ray of light also means a monitoring of the mobility of the city dwellers. The survey ends with the political lantern and its paradox, as the artefact, strongly linked to absolute monarchy and policecontrol, became a revolutionary emblem and a symbol of the violent revolutionary mobs.The lantern thus offered rational and functional alongside irrational and emotion-charged narratives.

By entwining the technical and symbolic functions of the streetlamp, I want to shed light upon the resonances of the political imaginary within the lantern materiality. This papers therefore aims at drawing attention to the multi-layered meanings of this so-called “banal” object, and at considering the streetlamp as a significant bearer of cultural identity.

BOTIN, Lars

Aalborg University/CPH (Denmark)

HEIDEGGER ON SPEED

There is a double sense and meaning in the title of this paper, where inquiries are made in order to find out whether Heidegger has any saying on technology and speed/acceleration, and furthermore to calibrate Heidegger in the framework of postphenomenology. It is the intention to revalidate central concepts in Heidegger's perspectives on technology in order to bring these up to date.

Speed and acceleration have in philosophy of technology been dealt with by Paul Virilio and Hartmut Rosa and is characterized by rather dystopian and determinist conceptions of how contemporary society is under the siege of technological acceleration. Heidegger's existential dialectical perception of technology could complement the dystopian conception of technology of Virilio and Rosa, and by the mediation of Bernard Stiegler, and his brilliant elaborations in Technics and Time (2009), it is the intention to reinvigorate Heidegger's ideas on the relation between time, technology and being. In this process of reinvigoration and revalidation it is mandatory to calibrate these ideas and frame them in postphenomenological perspective, because needed in order for postphenomenology to become 'more phenomenology' (Ihde 1993).

I am of the opinion that postphenomenology is in debt to Heidegger, and it is the intent of this paper to focus on this debt, and possibly initiate the process of paying back. I am fully aware of the fact that key figures in postphenomenology disagree on this debt and perceive Heidegger as obsolete and superfluous in relation to conceptions on contemporary technology. But if we calibrate Heidegger and put his ideas on speed then the relevance should become readily apparent.

BOUABDELI, Sarra

University of Reading

EMPATHY AND THE ARTISTIC VALUE OF VR STORYTELLING

My paper argues that virtual reality technology (henceforth VR) provides a promising outlet for artistic expression that is more emotionally engaging than other, non or less immersive forms of storytelling. I defend this claim upon consulting different approaches for capturing artistic value. For instance, hedonism in the context of artistic theory holds that art is valuable by virtue of being artistically pleasant. Similarly, proponents of aestheticism believe that artistic value is more determined by how beautiful a piece of art is. At a first glance, both views may seem sufficient for explaining artistic value. However, we are not always inclined to describe an enjoyable or aesthetically appealing movie as "artistically valuable", in that more conditions seem to be needed for capturing the necessary grounds for artistic value. This paper subscribes to a slightly modified version of expressivism; which is the view that art is valuable as long as it effectively expresses emotional experiences. Here, the more emotionally engaging art is, the more likely we are to describe it as artistically valuable. Next, I discuss some technical underpinnings of VR storytelling such as VR perspective taking, immersion and photorealism to then argue that VR storytelling can be more artistically valuable than other forms of storytelling due to the rich sensory modalities that VR can afford. The second part of my paper focuses on the instrumental role that VR storytelling plays in terms of stimulating empathy and prosocial behaviour in relation to the aforementioned communicability of emotional experiences. A great deal of empirical research shows that lived stories in VR have more impact on how empathic, and even prosocial, VR users behave both during and after experiencing a story in VR. Thus, my paper focuses on the artistic value of emotional expression in VR storytelling and its impact on developing empathy and prosocial behaviour.

BOUR, Salomé

University of Namur

FROM PHILOSOPHY OF TRANSHUMANISM TO PRACTICAL TRANSHUMANISM AND BODY MODIFICATIONS

The transhumanist movement is first theoretical: it is based on the idea that the nature of human beings is imperfect and that it is now time for us to take charge of the evolution of our species. thanks to technology (Max More, 1999). The main objective would thus be to put an end to aging, disease and death so that human beings can live as long as they want. But transhumanists also advocate morphological freedom, which consists in freely choosing the shape of one's body, whether or not using technology. Thus, they imagine the body of the future as a smart body, capable of offering us new capacities to adapt to our environment and as being the result of individual reflection (Natasha Vita-More, 1997).

The philosophy of transhumanism, and more specifically extropianism, has inspired the biohackers interested in bodily modification and self-experimentation like Tim Cannon, Amal Graafstra and Lepht Anonym. These biohackers chose to develop prototypes that they implanted directly into their flesh to gain new senses and / or new abilities. The aim of this presentation is to examine how transhumanist philosophy nourished their imaginaries and to analyse their conception of body modification to highlight the relationship between practical transhumanism and biohacking.

BOURGOIS, Pierre

Institut de recherche Montesquieu (IRM/CMRP), Université de Bordeaux / Institut de recherche stratégique de l'École militaire (IRSEM)

REFLECTIONS ABOUT EMERGING MILITARY TECHNOLOGIES: THE CASE OF THE ENHANCED SOLDIER

The idea of "soldier enhancement" has long been a theme of science fiction and popular culture. From Starship Troopers and Captain America to Iron Man and the video game Halo, there are many examples, through the decades, of representation of the super soldier from a fictional angle. However, soldier enhancement exists beyond science fiction. In this regard, if armies have always tried to improve abilities of soldier, new perspectives emerged with the contemporary technoscientific revolution (NBIC). Today, the objective is quite simply to improve the soldier's main battlefield faults, namely his human nature. Therefore, for several years now, some nations seem to have embarked on the development of the super soldier. From simple drugs to genetic engineering, contemporary technoscientific advances now make it possible to envisage the appearance of a enhanced soldier, with increased physical and mental capacities. In this regard, one of the leading powers in this area is the United States. For example, in a declassified report from the United States Defense Advanced Research Projects Agency (DARPA), dating from 2002, its director at the time, Anthony J. Tether, stressed the importance of human enhancement for military forces. According to him, it "is aimed at preventing humans from becoming the weakest link in the U.S. military by exploiting the life sciences to make the individual warfighter stronger, more alert, more endurant, and better able to heal". Unsurprisingly, the development of the enhanced soldier poses important and diverse challenges. This presentation aims to analyze the concept of soldier enhancement in its different dimensions, and to present some of its main issues.

BRAULT, Nicolas

Institut Polytechnique UniLaSalle

TECHNOLOGICAL IMAGINARIES IN AGRICULTURE: TECHNOLOGIES OF DOMESTICATION, DOMESTICATION OF TECHNOLOGIES (PANEL)

Domestication studies has roused attention from many scientists in the last decade, from evolutionary biologists to anthropologists. In this panel, we address the issues raised by domestication, in agriculture and beyond.

The main issue is that the domestication process appears today, at least in western societies' imaginaries, as a set of technologies that should be simply abandoned for ethical and ecological reasons. We want to demonstrate that this is neither possible, nor desirable.

To do this, we examine in text (1) the two imaginaries in competition concerning domestication: one which is hyper-technological, the other which can be considered as anti-technological.

In text (2), we show through the study of the concept of "rewilding" that giving up technology is still a technological act, and that this return to wilderness is largely a myth.

In text (3), however, we consider that the main critics against technology are justified, so that humanity has to shift from "zombie technologies", i.e. unsustainable technologies which need fossil energy, by "living technologies", i.e. technologies which are connected to the living system and take it into account.

In text (4), we point that technologies are not only the tools or the means to domesticate living beings or nature, but have also to be domesticated by man and by animals. For example, the introduction of robots in animal breeding undoubtedly modifies the relation and the articulation between the breeder and his animals, but also the relation of the animals and the breeder to the robots.

Finally, in text (5), it is demonstrated that Charles Darwin, to avoid being accused of anthropomorphism by comparing natural with artificial selection, somehow naturalized artificial selection through sexual selection, and introduced an interindividual process of selection.

The domestication of plants and animals was indeed a major breakthrough in evolution, and modified both living beings (including humans) and their environment. It is therefore crucial to construct a new technological imaginary which could participate to create a more sustainable world for all non-living and living beings on Earth.

BRAULT, Nicolas

Interact UP-2018.C102, Institut Polytechnique UniLaSalle

IS THE IMAGINARY OF REWILDING ANTI-TECHNOLOGICAL?

This communication questions the very notion of sociotechnical imaginaries, defined by Jasanoff as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (Jasanoff and Kim, 2015) by applying it to the notion of rewilding.

This notion, originated in the field of conservative biology (especially ecosystem management), but deeply discussed in environmental ethics and policies, seems indeed contradictory with the definition of technological imaginary. If the rewilding of nature appears desirable for many citizens around the world, this desirable future is not attainable nor supportive of advances in science and technology, but rather discourage or prohibit any use of science and technology.

Without tackling the ethical or environmental issues behind this notion of rewilding, this communication aims to show that this contradiction is only apparent: giving up domestication and leaving nature alone appears, contrary to the arguments of its proponents, as the latest or even the final manifestation of the enterprise of domestication of nature started thousands of years ago by the human species, as it is a whole ecosystem which is domesticated. In that sense the notion of sociotechnical imaginary is still relevant.

BRAUN, Robert

Institute for Advanced Studies

Co-author: Richard RANDELL

ONTOPOLITICAL IMAGINARIES

In this paper we argue that automobility in its entirety may be described as an imaginary, which we call “the automobility imaginary.” It is an imaginary that is neither embedded within the technologies of which automobility is composed, nor are those technologies embedded within the imaginary. The technologies of automobility are components of the imaginary. The literature on imaginaries, social, sociotechnical and political, has invariably juxtaposed imaginaries with something other, “the real,”—usually understood to be the physical and material. Imaginaries within this literature are representational and descriptive, signifiers of a signified physical and material reality. The dilemma is not that of which to give priority to, but a metaphysics that has inscribed a world made of two ontologically distinct components: the “imaginary” and the “real.” No less than automobile advertisements or the current widely disseminated sociotechnical visions of autonomous and electric vehicles, automobility infrastructure and automobiles themselves are material semiotic agents, co-producers of the automobility ontopolitical imaginary. The ostensible materiality of automobility is no less an interconnected, indexical and reflexive collection of signifiers than its ostensible non-material representations, the images of automobility. Engaging with concepts that place speed, violence and power at their core (Virilio’s dromocracy, Schmitt’s nomocracy, Agamben’s destitute power) this paper examines the ontopolitics of the automobility imaginary. It is an imaginary that is simultaneously a totalitarian ontology. Its deconstruction suggests not a politics of constructing new ontopolitically grounded sociotechnical imaginaries but technopolitical insurrection based on destitute commoning as a strategy for moving towards a post-automobility future. Although the focus of our paper is automobility, its implications are applicable to many, if not all, late-modern technologies for which an ontopolitical imaginary can be identified.

BRETEL, Alexandre

University of Grenoble Alpes

How to be Responsibly Afraid of Technology: A Study of the Notion of Fear with Hans Jonas, Günther Anders and Hannah Arendt

Thinkers such as Hans Jonas, Günther Anders and Hannah Arendt have introduced into the philosophy of technology concepts that have revolutionized the discipline. Hans Jonas thus developed the Principle of Responsibility, stipulating the preservation of authentic humanity on Earth, using the heuristics of fear as a method to identify threats to the well-being and survival of humanity. We must therefore listen to both our instincts and reason to determine the most appropriate fear. Paradoxically, we must find the courage to be afraid. He has been particularly interested in the risks linked to genetic modifications, and is a precursor of ecological thinking. It is the Responsibility Principle which is at the origin of the Precautionary Principle, and which is opposed to the Hope Principle formulated by Ernst Bloch. Günther Anders wondered how to live in our time, which he describes as the pre-apocalyptic period, in which our existence remains suspended because of the threat created by technology. He wrote in a Cold War context where there was a significant risk of a nuclear holocaust. He believes that fear is not only a legitimate attitude, but is indispensable for adopting a moral stance. We live in a "Promethean gap", where our technical production capacities exceed our capacities of representation, hence the risk of a threat that we can no longer even imagine ourselves. Hannah Arendt has written about the banality of evil, in the context of the Second World War, and wonders how to think about both individual and collective responsibility to avoid the worst ideological drifts, reinforced by the power of technology. It is therefore necessary to think of a path for the technology that allows us to hope for its benefits while avoiding its new risks.

BRINGSJORD, Selmer

RPI

RODIN'S THE GATES OF HELL AS A COMPUTER PROGRAM, AND AN EXEMPLAR OF THE CLASS

Rodin's The Gates of Hell is at once great sculpture and — courtesy, in part, of Dante — great fiction. This category, fictional sculpture as I baptize it, is the category into which robust and worthy computer programs fall; and indeed this membership serves to distinguish such programs. I explain this by way of an analysis of Rodin's masterpiece and its gradual materialization in and from the mind of the master, a process that included not only deeply understanding Dante's Divine Comedy, but also advancing the poet's story. The programmer sees and grasps the pure, abstract narrative (e.g. the algorithm), and gradually sketches and then sculpts a particular realization of it that has its own new beauty. In short, Rodin's process is the process of writing worthy code, and hence time in his Parisian house and gardens is time in touch with the eternal realm from which such code comes.

BRISTOL, Terry

Portland State University

THE TECHNOLOGICAL STRUCTURE AND FUNCTION OF REALITY

The background concern is the ontology of the engineering worldview. For Bugliarello, what engineers do, their progressive development of reality, is a natural extension of biological evolution. Accordingly, biological evolution is to be understood as an emergent engineering enterprise. How might we understand the emerging technological structures and functions of reality?

The engineering worldview is not new. In Plato's Timaeus reality is the emerging product of the actions of the Architekton, Master Craftsman, engineer. This re-surfaces in Leibniz's 'Primary' Dynamics and Maupertuis's Principle of Least Action, and in the engineering thermodynamics of Lazare and Sadi Carnot. Similar evolutionary thoughts of Hegel, Schelling and Kant inspired American Pragmatism.

I focus on the historical debate between the uniformitarianism of Lyell and the novel insights of paleontologist Cuvier.

Textbook accounts had favored Lyell over Cuvier, until evidence for the asteroid impact and dinosaur extinction reopened the issue. Cuvier is exceptionally insightful, distinguishing two types of scientific inquiry: one directed at the general, uniform, invariant characteristics of reality, the other directed at the cumulative, emerging spatio-temporal particulars. Cuvier, together with Humboldt began novel investigations of the chronology and geo-distribution of the emerging structures and functions of the geo-biosphere.

Vincenti argued engineering epistemology is more general superseding the 'tools' of classical science. The engineering ontology supersedes scientific ontologies. No zero-sum-mechanics can fully understand the generative processes and products of the engineer (e.g. the airplane, the cell phone, etc.) One key question concerns the relation between the more general 'primary' engineering worldview and the complementary rational mechanical worldviews (e.g. Newtonian and Maxwellian).

The re-examination of the Lyell-Cuvier debate illuminates the engineering ontology while also suggesting how the more general engineering worldview provides a new understanding of the value and inherent limitation of the derivative mechanical worldviews.

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BUCH, Anders

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CARE AND BILDUNG IN EDUCATION – A CONCEPTUAL REFLECTION ON THEORETICAL FRAMEWORKS FOR EXPLORING SOCIOTECHNICAL IMAGINARIES IN EDUCATION

Sociotechnical imaginaries are embodied, inscribed, and enacted in educational technologies and practices. The emergence of data-driven practices and the increasing datafication of the education sector contribute to transform educational imaginaries of modernity and the power of digitalization and automation in education. New digital technologies and their constituent practices thus institute normative orders of what matters, what counts, and what should be cared about.

This paper set out to conceptually explore theoretical vocabularies and frameworks that are potentially suited to investigate and discuss the ethical dimensions of sociotechnical imaginaries in education. We do this by asking the questions:

Sociotechnical imaginaries point out how epistemic orders and moral orders intersect normatively. The paper discusses a number of theoretical frameworks that seeks to connect the epistemic dimension of coming to know and learning with the ethical dimension of care and mattering, including contemporary practice theoretical approaches, post-ANT, feminist care ethics, social learning theory, and classical American pragmatism. Through our reading of these very diverse strands of theorizing, we explore if these resources are able to fathom and potentially critique sociotechnical imaginaries in education. Furthermore, we discuss whether these theoretical resources lend credibility to critique hegemonic sociotechnical imaginaries, and if they have potential to enable re-imagining education and the use of digital technologies along lines that might institute progressive ideals about Bildung in education.

The conceptual exploration enables us to address the following questions:

- Where is the frontline of sociotechnical imaginaries in educational research, and where is it situated in educational practice?

- How can we address Bildung today in relation to the fact that technology changes/configurates culture, and that Bildung in education is differently conceptualized and situated in educational systems, such as in the Nordics, German tradition, and in France?

BUCH, Anders

Research Centre for Quality of Education, Profession Policy, and Practice

THE NEED FOR A RECOVERY OF ENGINEERING

In this chapter I argue that engineering is, if any, the relevant discipline to mediate, revitalize, and transform the conversation between the sciences and the social sciences and humanities (SSH). However, to do so engineering must fundamentally be recovered, rethought and reconstructed as a practical endeavor that aims to solve problems –it must not be construed as a discipline of applied science (or applied SSH for that matter).I propose that John Dewey's critique of the nature/culture split, and his attempt to reconstruct philosophy along pragmatist, historicist, and naturalist ideas that stress the fundamental primacy of practical endeavors embodies the ethos of the engineering mindset. In reconsidering the role of engineering as a problem-solving discipline that seeks to ameliorate living conditions it can serve as an ideal platform for interdisciplinary dialogue and collaboration between the natural sciences and SSH. I argue that a pragmatist recovery of engineering lends us hope, that in the future engineering might serve as a discipline that will truly bring the conversation between science and SSH of age.

BULLEIT, William

Michigan Tech

THE ENGINEERING WAY OF THINKING: OPPORTUNITIES AND LIMITS (PANEL)

The thesis of this session is that engineering in the broad sense is a way of adapting to an ever-changing and highly uncertain world using variation and selection while balancing risks and costs against benefits. We refer to this approach as the "engineering way of thinking" (EWT).

At the 2013 annual meeting of the National Academy of Engineering, Mitch Daniels, former governor of Indiana and president of Purdue University, said about the possibility of educating too many engineers: "But even if we were to somehow outrun the market's need for engineering talent, we will be a far stronger country if the engineering mentality takes a more prominent place in our national conversation." The EWT encompasses terms such as engineering in the broad sense, the engineering mentality, or the engineering mindset.

With apologies to the philosopher Wilfrid Sellars, the EWT is a means to approach design, in the broadest possible sense of the term; using heuristics, in the broadest possible sense of the term; to develop, maintain, and manage artifacts, in the broadest possible sense of the term. The EWT is a method for arriving at technological imaginaries in the broad sense, and is also itself a technological imaginary that evolves and adapts accordingly.

Billy Koen has said that the engineering method is to use heuristics, which are potentially fallible techniques that allow otherwise intractable problems to be solved, ranging from crude rules of thumb to sophisticated procedures. They include how we choose what heuristics to use, what kinds of heuristics we use, how we use the heuristics that we choose, when we change heuristics, how we change heuristics, and why we change heuristics. Heuristics, including models to simulate and predict behavior, must change to meet the demands of a constantly changing system.

Hardy Cross understood the EWT in the early 20th century. He said of engineers, "They use any fact or theory of science, whatever and however developed, that contributes to their art." He also understood that engineering goes beyond science: "Engineers are not, however, primarily scientists. If they must be classified, they may be considered more humanists than scientists. Those who devote their life to engineering are likely to find themselves in contact with almost every phase of human activity."

Engineering is done by enabling variation in the form of new designs and selection in the form of choosing the best designs by examining those that fail. Tim Harford, an economist, describes three principles of adapting that sound like heuristics that engineers routinely use: (1) "try new things, expecting that some will fail"; (2) "make failures survivable: create safe spaces for failure or move forward in small steps"; and (3) "make sure you know when you've failed, or you will never learn."

The panel presentations will allow the EWT to be examined from four different perspectives in an effort to explain its implications for engineering and society. Addressing specific questions raised by panel members or the audience will foster open discussion and further clarify the issues.

BULLEIT, William

Michigan Tech

How Does Uncertainty Affect the Engineering Way of Thinking?

All engineering decisions have uncertain outcomes, and the level of uncertainty affects heuristics that are used to make the decisions. An automobile engine can be designed using fairly precise mathematical models because a prototype of the engine can be built and tested. The model can be updated based on the results, and then the prototype can be modified and tested again. This iterative process reduces the uncertainty about the engine's behavior.

A prototype is not practically feasible for a bridge. It must instead be designed and built solely based on a mathematical model, including highly uncertain loads such as earthquakes. Its anticipated behavior cannot be predicted with as much precision as for an engine. Another difference is that manufacturing tolerances can be better enforced in an engine than with a bridge. Knowing that what is built is the same as what was designed is more contingent with the latter.

Uncertainty increases even more when we consider using the EWT to examine phenomena such as the COVID pandemic or the earth's climate. These are complex adaptive systems, such that local changes can produce global effects: the so-called butterfly effect. In these and other kinds of in-time systems, the decisions made today can produce outcomes that might appear wrong, even unethical, in the future. This presentation will discuss uncertainty and how a constantly evolving technological imaginary, the EWT, might produce better decisions under high levels of uncertainty.

BUTHAUD, Martin

METAPHORS OF THE WORLD: THE CASE OF VIDEO GAME

This paper focuses on the ways technological metaphors, in philosophical discourses, play a role on how we imagine and make sense of the world. We argue that each period of time produces its own metaphors and analogies to conceive the world which are closely correlated to technological developments shaping societies. The world, therefore, always seems to take the form of new technical tools emerging from each wave of scientific progress. According to Galileo and Descartes, Nature is a book; to Fontenelle, the universe is similar to an opera; to Leibniz, the world is a machine, a clock. Such examples can be found throughout history.

In order to support this claim, we will delve into a contemporary case by studying a philosophical and incongruous idea: the “simulation hypothesis”. According to this hypothesis, what we call “our world” is actually a computer simulation, and some even say that we would be living inside a video game. Inspired by pancomputationalist theories developed in the 1960s, this hypothesis has now been reintroduced by some public figures, but also by a research community of physicists and philosophers across the world. We will hence trace back the emergence of the simulation hypothesis to show how the video game metaphor was built at the crossroad of philosophy, physics, and computer sciences, while being nurtured by the profusion and richness of technological and science fiction imaginaries.

This way, we aim at demonstrating that metaphors are not just innocent ways of speaking, but strongly shape our shared imaginaries and constitute, at least in this case, a genuine cosmological paradigm allegedly able to explain the very nature and laws of the world.

BUTLER, Michael

University of Texas Rio Grande Valley

Co-author: Colin GRAVES

AN ENACTIVE APPROACH TO THE USE OF GPS: EXTENDED MIND VS. EXTENDED PERCEPTION

According to Clark and Chalmers's formulation of the Extended Mind Hypothesis (EMH), any process that would count as cognition were it to take place within the head is also part of the cognitive process if it is accomplished beyond the skull. On this view, using turn-based navigation on my smartphone is functionally equivalent to memorizing the directions to my destination and following them. It is therefore an instance of the mind extending beyond the brain or body.

But this conception of the extended mind fails to account for the different experiences of navigating by way of app instructions vs. by using a paper map vs. via memorized directions. If these are functionally equivalent, they are nevertheless qualitatively quite different. As noted by Besmer (2015) and Butler (forthcoming), navigation apps position their users as passive cargo rather than as agents moving through space. In this presentation we argue that this is because the navigation apps' design harbors incorrect presuppositons about the mind's role in navigation. Put simply, when navigation apps extend the mind, they do so by extending the wrong mental capacities.

To demonstrate, we have designed an alternative mobile navigation app based on the enactivist theory of cognition. On the enactivist account, cognition is not a process of calculation and symbolic representation. Rather, cognition occurs in an organism's ongoing engagement with its environment. Our enactive navigation app provides additional sensory data making the user sensitive to new, usually imperceptible, aspects of the environment. Rather than extending the mind by offloading the task of representing and planning a route through space onto an external vehicle, we aim to empower the user as an active navigator with extended powers of perception.

BYLIEVA, Daria

Peter the Great St.Petersburg Polytechnic University

PRACTICAL MASTERING TIME TRAVEL

The topic of time travel is not new in culture. But only our days give chance to everybody to manage the time.

The "past" in video games ceases to be just an appropriately decorated location but acquires its inherent attribute - the ability to influence the present/future. Playing with time could be organized on a different levels but in any case, it raises the question of the relationship between the past-present-future, and the meaning of these concepts. In most cases, the possibility of influencing the “past” on the “future” is realized within the author's options for replaying the plot (in the short or long term).

The time of the game world, losing linearity and unidirectionality is described in terms of space, and only the presence of cause-and-effect relationships remain unidirectional, from the past to the future. The timeline with the past, present, and future exist for the game world, and for the protagonist, there is the only movement from earlier to later and vice versa along the maze of possible outcomes of events.

The release in the last decade of hundreds of games dedicated to time may indicate the creation of a certain media frame, the activation of the understanding in the mass consciousness of eternalism, the four-dimensional space-time continuum as an objective reality. Recent solutions to the Einstein equation, allowing for the existence of a closed timelike curve that allows one to move into the past and the future, give a new impetus to the understanding of the phenomenon of time. Time travel in cultural space has been for over 100 years. Nevertheless, the use of time displacement in video games leads to a new "practical" form of mastering time by players.

CALZADA, Jonathan

UCLA

APORIAS OF INTENTION IN SOCIOTECHNICAL SYSTEMS

Is technology autonomous? The inquiry demands an accountability of intentions within the production of information technology, especially widely used software products and popular social media platforms. On the one hand, to claim that technology is autonomous would not only absolve many technology producers of any transgressions once their algorithms are released into the wild, but it would also bind the rest of us (consumers/users) into a form of technological determinism. On the other hand, if technology is not autonomous is it possible to effectively trace intentions through the long and deep connections involving multiple actors, events, spaces, and places? A 'no' answer implicates an irresolvable contradiction whereby tracing becomes impossible but necessary. What is at stake here is the lack of uncountability for and enablement of social injustices perpetrated collectively by institutions, organizations, and individuals. This paper continues an existing exploration to understand how sociotechnical assemblages manifest intentions that negatively impact some of the most vulnerable groups in our societies. Employing Bruno Latour's Actor-Network Theory as a theoretical framework, I make a necessary distinction between unitary artifacts and sociotechnical assemblages to argue that only the latter is capable of speaking, effecting a politics, and performing intention upon its users. I also endeavor to demonstrate how making a parallax shift from intentions to perceptions via a critical interpretation of user interfaces can make a more credible case for the inherent intentions residing within sociotechnical systems. Lastly, I discuss the insidious unintentionality of many designers that constitutes a practice of apathetic design, which effectively contributes to the social reproduction of discrimination in general and racism in specific.

CANTRELL, Hunter

United States Military Academy

RISK IN AUTONOMOUS WARFARE

One often discussed, yet not formalized component of Just War theorizing, is a necessary requirement that states—in the form of the soldiers it deploys—assume some imagined level of risk in order to fight a war justly (for commentary on the Doctrine of Double Effect, due care, or risk to combatants see Anscombe, 1961; Walzer, 1972; Steinhoff, 2007; McMahan, 2009). The risk requirement is often couched as a part of the necessary ad bellum proportionality calculation to engage in a just war (Roff, 2015). Is this an outdated requirement? I argue that it is. This paper will examine two main factors to conclude that the level of risk a nation is willing to take with the lives of its soldiers should not bear on the justness of a war. First, requiring a balanced or proportionate (to size or other criteria) amount of risk be assumed, inherently favors larger nations and is thus inegalitarian. This should be a troubling problem for scholars of the Just War Theory as an inegalitarian standard will not only favor the stronger nation but encourage others to build capacity—supposing they intend to fight a just war. Second, a requirement to assume some level of risk—especially an arbitrary level of risk—disregards the current and rapidly advanced state of military technology (and potentially other non-distinctly military technologies). Second, on average, the development of and refining of military technology generally falls in to one of two categories: a) technology that makes it easier to kill the enemy or b) technology that makes it harder for the enemy to kill you. By requiring some level of risk be assumed by a nation's soldiers in defense against aggression, we—as theorists—either implicitly or explicitly, ignore the reality of technological advancement. This issue is clearly demonstrated by the development and incremental employment of both semi and fully autonomous weapon systems. With both of these issues in mind, and in order to continue to refine the Just War Theory to ensure continued relevance to both theorists and practitioners, I argue that we ought to abandon any requirement that a nation engaging in justified war must meet some standard arbitrary level of risk to soldiers in its proportionality calculation and instead focus on system of proportionality that encompasses a broader range of risks to the state and innocents.

CAPASSO, Marianna

Sant'Anna School of Advanced Studies

ONLINE PLATFORMS AND POLITICAL POLARIZATION: SPINOZA'S IDEAS TO DEFEND DEMOCRACY

Online platforms (OPs) have changed how information, products and interactions are spread. Indeed, scholars have noticed that OPs are a space for targeted and polarized political propaganda, as the Cambridge Analytical scandal and US political elections have demonstrated (Milano and Al. 2020; Howard and Al. 2019).

Currently, there exists a new wave of attempts to study emotions in politics (Nussbaum 2018; Hochschild 2016). And recent works argue that Spinoza's philosophy may assist in deal with some of the challenges of AI and of today's digitalized world (Dahlbeck 2020; Kalpokas 2020). This paper aims to discuss the role of imagination and emotions in politics in Spinoza and to apply such analysis to the specific case of polarization in OPs.

First, the paper shows how the place of politics is the one created by the dynamics of emotions and images according to Spinoza (E 3 P12). Imagination supports meanings and acts of social actors and can be a source either for passive, anti-social behaviours, or active and social ones (TTP 5).

Second, the paper focuses on the issue of polarization in OPs. The divisive sides are interpreted as cases of vicious imagination, i.e., a wrong interpretation of emotions, especially of the feeling of inequality (TP 1 §5). Specifically, polarization creates pathological political identities that are exacerbated by the pervasive and profiling nature of OPs.

Finally, the paper argues that a remedy to wrongful cases of imagination can be found in Spinoza's idea of proportionality, that is the natural convergence of powers between parts and whole in the democratic political body (E 4 P20; TTP 16; Lord 2017).The paper demonstrates that such proportionality in relation to OPs may lead to: the promotion of awareness and co-regulation mechanisms; and the development of a collective 'cum-afficiere', i.e., a collective interpretive system of meaning and regulation.

CERA, Agostino

Università della Basilicata and Accademia di Belle Arti di Napoli

PROLEGOMENA TO A PHENOMENOLOGY OF DATAISM

My paper aims to sketch a Phenomenology of the so-called Dataism: the interperation of any entity as datum. This phenomenology consists of: 1) an Ontology of Dataism; 2) a Genealogy of Dataism; 3) an Anthropology of Dataism.

1. As “religion of data” (Harari), the dataism stands out together with the faith that datum represents the ultimate configuration of all entities. According to this approach, an entity exists only insofar as it can become a datum. Dataism’s basic assumption is the ontological equation between “being” and “being computable”, since a datum corresponds to the reduction of an entity to its computability.

2. From a historical-philosophical perspective the dataism equates to the final stage of the “disenchatment of the world” (Weber). This disenchantment aims to realize homo faber’s utopia: the maximum extent of its will to power. I call this phenomenon Pan-anthropism. We can find three stages in the disenchantment process.

- A Cartesian stage which interprets entities as objectum (object);

- A Vichian stage which interprets entities as factum (fact);

- A Heideggerian stage which intreprets entities as Bestand (standing-reserve).

The interpretation of entities as datum establishes the accomplished disenchantment of the world. As a datum – i.e. something entirely computable – an entity losts any form of autonomy.

3. However, at the basis of dataism hides an anthropological paradox, To realize the pan-anthropic utopia (i.e. to extend his will to power on every entity), homo faber must transform himself in homo materia (Anders). To become homo creator (the subject of reality), he must make himself homo materia (the object of his own making). He must subjugate himself to his own technological (omni)power, thus becoming a human resource: an entirely computable entity. As a result, homo deus proves to be homo datum. That is, a believer in techne deus.

CERA, Agostino

Università della Basilicata and Accademia di Belle Arti di Napoli

NEW TIMES, NEW RULES: ETHICAL CHALLENGES IN THE ANTHROPOCENE

My paper sketches an ethical paradox emerging within the Anthropocene: The Paradox of Omni-responsibility. The first step of my argument is a critical dissection of the Anthropocene as worldview. Within such a worldview, human being leaves its role as master of a nature conceived as object, and takes on the role as "Planetary Manager" of a nature conceived as living being. More precisely, nature becomes a kind of pett, something living, but entirely dependent on us and thus something for which we feel totally responsible. I define this phenomenon as Pet-ification of Nature. The combination between the Pet-ification of Nature and the absolutization of Planetary Manager's responsibility produces the Ethical Paradox of Omni-Responsibility. On the basis of its ecological duty of total caretaking of its environment, human being gives birth to a new form of anthropocentrism not less problematic than the traditional one. In this case, anthropocentric hybris emerges as the paradoxical outcome of our hyper-interest and omni-responsibility towards nature. As a result, the Anthropocene establishes the overcoming of Jonas' "imperative of responsibility" as ethical standard. From an ethical perspective the most urgent request of our epoch is that we acknowledge the Limits of Responsibility, namely the potentially dangerous consequences of our best intentions, when they become completely makeable. At the same time, it demands that we become aware of a new ethical problem: the potential aporia between the responsibility for the other and the respect of its otherness, namely that no authentic "Verantwortlichkeit" (responsibility) is possible without "Gelassenheit" (releasement).

CHAKRABORTY, Ravi Sekhar

Indian Institute of Technology Delhi

"STATISTICS AS TECHNOLOGY"-ON THE INFLUENCE OF CYBERNETICS ON PLANNING IN INDIA

Independent India confronted the vacuum generated by the fading away of the Gandhian charkha , a potent symbol of an anti-colonial sociotechnical imaginary. The paper argues that the technological imaginary that followed ,while not being collectively operationalized enough, was crucial in filling up the vacuum. This was a particularly technological understanding of statistics in the vision of the pioneer of statistical planning in India- P.C. Mahalanobis.

While the archives do not retain a proper historical record of the influence that Norbert Wiener had on Mahalanobis given their meeting (See Adamson(2012)), one cannot restrict the search for an imaginary to empirical evidence alone. It is worthwhile to speculatively employ Wiener's cybernetic worldview to crystallize the persistent technological imaginary that empowered the statistical machinery. Mahalanobis makes a pertinent remark in this context:

"statistics is not a branch of mathematics but is a technology which is essentially concerned with the contingent world of reality … as distinguished from a world of abstraction" (Rudra, 176)

Statistics individuates as a technology that is exclusive to the state even as it embodies an acknowledgement of the limits of state control (of the contingency of reality). The cybernetic perspective allows one to recast critical readings of Mahalanobis's use of anthropometry as enabling casteism, even as it speaks to the political leadership's desire for an alternative view of industrialization that considered both the value of the dignity of the individual human body as well as the task of turning a large population into a productive labor force.

CHAKRABORTY, Arnab

Independent Researcher

SUPER-MATERIAL ENTITIES, MEDUSA VISIONS AND TECHNICITIES OF THE WILL: IMAGINARIES OF INHUMAN SOMATECHNICS, ANIMAL MAGNETISM AND POSTHUMAN TECHNOLOGIES OF VISION, (IN)-SIGHT AND SYMPATHETIC IMPRESSIONS IN GUSTAV MEYRINK'S THE WHITE DOMINICAN AND EDWARD BU

The paper following this abstract intends to comparatively, historically and theoretically read the technological imaginaries of posthuman vision and insight, animal magnetism and impressionings of the will through automatic writing and sympathetic image making as narrativized in the Austrian Fin de Siècle writer, translator and occultist Gustav Meyrink's esoteric novel, The White Dominican and the English writer and politician's Edward Bulwer-Lytton's short story 'The House and the Brain'. The readings would attempt to reveal through a comparative study of historical contexts and through the theorizing of the techne, how both writers generously mediated two to three centuries of ideas and concepts about hypnosis, Mesmerism, animal magnetism, philosophies of the Will and the Unconscious in German Idealism, Romanticism, Expressionism, Psychological philosophy and Psychoanalytical theory through their narratives to depict the supernatural and the occult as entangled imaginaries of the sciences of the day. Although both writers decry the positivist and materially reductionist sciences of the nineteenth century, they are intensely involved with what would be termed as the pseudo-sciences in our contemporary times.

Despite being categorized as 'rejected' and 'pseudo-sciences' by mainstream science, the occult and the esoteric has found respectable space as in the emerging disciplines of Gnostic Studies, Mysticism and Western Esotericism. They are also increasingly finding serious space in animism, new materialism, philosophies of Panpsychism and through the spectrum of the Posthumanities. The paper intends to make an intervention in these discourses as the two nineteenth century narratives both epitomize and develop on three centuries of 'scientific', philosophical and esoteric discourses through their characters, events and plots. The intervention lies in certain new ways of reading these texts with contemporary theorists from Heidegger, Derrida and Stiegler to Haraway, Braidotti, Barad and Ferrando, to reveal the technicities and processes of enhanced posthuman vision, insight and inhuman (and posthuman) impressionings of the Will through the written word and image. The stakes of such readings like in rediscovering new discourses of the posthuman in late nineteenth century literary texts.

CHECKETTS, Levi

Santa Clara University

THEOLOGY, IMAGES AND ARTIFICIAL INTELLIGENCE (PANEL)

Technical imaginaries offer a rich avenue for studying technologies and their place in society, both descriptively and normatively. Philosophy of technology is enriched by investigating these imaginaries through the visions of technoprogressives and technoconservatives. These visions, insightful and ready to hand, are not the only meaningful social imaginaries; religious systems, as a primary example, have a long collaborative history with philosophy in pursuit of a more complete vision of the world, replete with ethics, metaphysics and epistemologies.

This panel addresses the technical imaginary of Artificial Intelligence research through various lenses of Christian theology. The four papers cover a range of perspectives, from fourth century Church Fathers to twentieth century Neo-Orthodox and liberation theologians, from epistemology to relationship. The authors examine the claims and aims of AI as a desirable technology and set them in conversation with theological visions of humanity.

Noreen Herzfeld challenges the image of AI as capable of having authentic relationship with human beings through the theology of Karl Barth. Marius Dorobantu interrogates Christian understandings of the demonic as a fruitful provocation in light of which to posit a Christian understanding of free will as an optimistic rejoinder to predictive algorithms and their "hacking" of the human person. Jordan Wales applies the thought of St Augustine's to AI bias in order to expose the idolizing tendency of machine learning epistemologies. Finally, Levi Checketts argues that the sociotechnical vision that AI researchers promise is antithetical to Latin American liberation theology's "Civilization of the Poor," a more authentically Christian vision.

As philosophers of technology and STS scholars look for alternative imaginaries to respond to morally troubling technologies, we do well to remember that religion is one of the more generative sources for alternative visions and maintains a fair degree of moral authority. The theological engagements in this panel open new avenues for discussion which, we hope, will contribute to broader philosophical discussions on AI.

CHECKETTS, Levi

Santa Clara University

THE CIVILIZATION OF THE POOR AND AI

Within Christian social theology (e.g. Rauschenbusch's "Social Gospel," black liberation theology, Catholic Social Teaching), the moral status of institutions, laws, politics and other social "forces" looms large. One reads of the "kingdom of evil" in Rauschenbusch or "social sin" in Latin American liberation theology. In contrast, they often appeal to theologically rich eschatological visions as social teloi. One such vision, articulated by John Sobrino and Ignacio Ellacuria is the "Civilization of the Poor," a society marked not by growth or prosperity, but by solidarity and prophetic witness.

AI, as a suite of technologies, is being developed with the "Civilization of Wealth" as its technical imaginary: it promises exponential growth possibilities, power beyond compare, an end to menial work, and augmentation of all of our quantifiable qualities. While the reality of these goals is at best dubious, the aims of such pioneers as Moravec, Goertzel, Kurzweil and others, and the advertising around AI, promise a techno-progressive future. Liberation theology unmasks this imaginary as morally bankrupt, a service to the wealthiest and a denial of the experience of the worst off in our world.

The Civilization of the Poor, in contrast, rests on the "option for the poor," a moral, and, I contend, epistemological preference for the experience of the poor over the rich. An AI oriented toward this end looks very different in its aims and functions: protection of rights over profit, distributing resources by need, facilitating the expression of the marginalized and prioritizing homeostasis over growth.

CHOMANSKI, Bartek

University of Western Ontario

PRIVACY SELF-MANAGEMENT, CONSENT, AND THE RIGHT NOT TO KNOW

When you click a button that says, 'I agree to these terms,' do you really agree? Most scholars who consider this question would tend to answer 'no' – or, at the very least, they would deem your agreement normatively deficient. I argue that this prevailing view is wrong. Consent to online terms and conditions is less ethically problematic than many scholars suppose. This is because, in deciding to click the button, often without reading the actual terms, Internet users are exercising the right not to know (RNTK) the privacy policies and other relevant information contained therein.

The RNTK has long been a staple of debates about informed consent among bioethicists, but, to my knowledge, scholars have not examined its relevance to online consent forms. Yet, as I argue, the RNTK can play an important role in undermining the arguments that online consent is usually illegitimate, needs to be rethought, or ought not to result in binding agreements.

This is because the Internet users' decision not to read – or only skim through – the privacy policies and other terms and conditions they agree to can be taken to be a legitimate expression of the users' RNTK. If there is such a right, then the users may legitimately refuse to access pertinent information. The exercise of the RNTK does not undermine the users' consent. Consequently, one of the main reasons why online consent is thought to need replacement or supplementation does not in fact support that conclusion.

CLANCY, Rockwell

Delft University of Technology

THE RELATION BETWEEN AND EFFECTS OF EDUCATION ON ETHICAL REASONING AND MORAL FOUNDATIONS AMONG ENGINEERING STUDENTS IN CHINA

Empirical research in engineering ethics has tended to assess the ethical reasoning abilities of students in predominately WEIRD (Western Educated Industrialized Rich Democratic) countries. However, it is not clear that ethical judgments are only or primarily the result of ethical reasoning, or that conclusions based on WEIRD samples are applicable across cultures. To address these shortcomings, ongoing research has been examined the 1. relation between ethical reasoning and moral foundations among engineering students in China, and 2. effects of ethics education on ethical reasoning and moral foundations. To do so, engineering students at a US-Chinese educational institute in Shanghai, China completed the ESIT (Engineering and Science Issues Test) and MFQ (Moral Foundations Questionnaire) before and after a course on engineering ethics, to measure ethical reasoning and moral foundations, respectively. The ESIT uses two measures of ethical reasoning: P scores assess the prevalence of postconventional reasoning, while N2 scores measure the prevalence of postconventional reasoning relative to preconventional reasoning. The MFQ assesses moral foundations through the importance participants place on care, fairness, authority, loyalty, and sanctity in answering questions about right and wrong, and their levels of agreement with numerous statements. Results indicate that 1. Ethical reasoning is positively related to an emphasis on care and fairness 2. ethics education results in higher levels of ethical reasoning, as well as a greater concern with fairness and loyalty. The educational implications of these results are discussed, as well as shortcomings of the current study and directions for future work.

CLANCY, Rockwell

Delft University of Technology

THE ULTIMATE GOAL OF ETHICS EDUCATION SHOULD BE MORE ETHICAL BEHAVIORS

Ethics has been recognized as critical to engineering, although disagreement exists concerning the form engineering ethics education should take and the contents it should include. In part, this stems from disagreement about the goals of ethics education. To address these disagreements and sketch a path for research and education, this paper argues that the ultimate goal of ethics education should be more ethical behaviors. To achieve this objective, however, engineering ethics must engage with the field of empirical moral psychology. The paper begins with reasons for adopting ethical behaviors as the ultimate goal of ethics education: Behaviors are what the public cares about in engineering, as well as professional engineering organizations. It goes on to consider why the adoption of ethical behaviors as an educational outcome has been/would be contentious: Accurately assessing the effects of education on ethical behaviors is difficult if not impossible. In addition to having a common understanding of "ethical behavior," studies would need to assess the behaviors of students long after they leave the classroom. Instead, curricula have tended to adopt ethical understanding and reasoning as the ends of ethics education, despite the fact there are reasons for doubting that understanding and reasoning result in more ethical behaviors. The paper ends by considering responses to these problems: Empirical moral psychology has resources for assessing the effects of education on ethical behaviors. A growing body of cross-cultural research has identified features of ethics that are and are not shared across cultural groups, as well as factors that contribute to ethical behaviors. Rather than assessing behaviors directly, proxies for ethical and unethical behaviors can be identified and assessed.

CLARIZIO, Emanuele

Catholic University of Lille

EPISTEMOLOGICAL AND ETHICAL ISSUES OF PERSONALIZED BIONIC PROSTHESES (PANEL)

The relationship between life and the technique, nature and artifice, is at the heart of bionics, who studies living mechanisms in order to exploit them in the creation of technical artefacts. Without adopting a naïve posture according to which imitating nature would bring benefits by itself, the stakes of bionics lie rather in the problematization of the gap between nature and artifice, in order to put forward a critical analysis of what is lost, what is acquired and what is modified in the path that leads from the living to the living through techniques. From this theoretical perspective, bionics finds a natural application in the field of care, understood in Joan Tronto's broad and inclusive sense, as “everything that we do to maintain, continue, and repair 'our world' so that we can live in it as well as possible”.

In this panel, researchers in philosophy and ethics will dialogue with researchers in bionics and neuro-rehabilitation in order to analyze a concrete case study - that of personalized bionic prostheses - and reflect on its epistemological and ethical stakes. Researchers developing bionic devices, in fact, constantly work by articulating neurology and neurorehabilitation on the one hand with robotics and engineering on the other, i.e. life sciences and engineering sciences. Moreover, this articulation is now done in the light of data-based knowledge, which allows a fine grasp of the mechanisms (neurological, functional and mechanical) related to locomotion. In doing so, the living is apprehended not only in its generic and specific characteristics, but also in its individual peculiarities, as a singular living being which responds to the stimuli of the environment in a unique way and whose structures and behaviors are singular. In this context, the challenge of designing prostheses becomes that of personalizing the devices to a particular body.

CLARIZIO, Emanuele

Catholic University of Lille

TOWARD A BIOLOGICAL PHILOSOPHY OF TECHNOLOGY

Every philosophy of technology contains, more or less consciously, a conception of technology, that is, a certain idea of what technology is. One could almost say that the entire field of the philosophy of technology is an unending debate about the definition of its own object. This presentation contributes to this debate with a proposal that has a long and scattered history: the general framework adopted is that of a definition of technology through its essential relationship to life, following the intuition of Canguilhem who, in 1947, indicated the opportunity to constitute a "biological philosophy of technology".

Although this expression is often used to refer to any philosophy that generically postulates an essential link between life and technology, it is here understood in a precise sense: following the work of Bergson, Leroi-Gourhan and Simondon, biological philosophy of technology is intended as a thought of technical invention as a biological function.

Beyond the dominant approaches in contemporary philosophy of technology, which rarely put the issue concerning the living being at the heart of their questioning, this presentation intends to show that a philosophy of technology anchored in the tradition of biological philosophy is not only possible, but desirable. Such a philosophy is likely to activate or reactivate certain themes and fields that are not taken into account in other traditions of philosophy of technology: on the one hand, renewing the dialogue between epistemology and philosophy of technology; on the other hand, providing an innovative conceptual framework (that of the living) and a relational and contextual approach to ethics, in order to go beyond the classical, but often unsatisfactory, approaches to bioethics, centered on the notions of autonomy and human rights.

CLARIZIO, Emanuele

Catholic University of Lille

PERSONALIZED MEDICINE: WHICH DATA FOR WHAT KIND OF PERSONALIZATION?

The link between big data and personalized medicine is often claimed in many branches of biomedicine, particularly in cancerology where it implicates exploiting genetic data of large cohorts of subjects in order to observe the correlations between genetic variants and tumors, so to isolate actionable targets and develop (or redirect) personalized genetic drugs. However, despite the promises of personalized medicine in this field, its results are weak, notably because the genetic approach remains reductive in explaining a kind of pathology that is largely multifactorial.

The approach of bionics to the personalization of prostheses through neurorehabilitation tools seems to offer an alternative model of personalization: it doesn't consist in profiling patients on the basis of statistical approaches, but in modelling the structure and behavior of the individual patient on the basis of a mass of integrated data. Doing so, bionics seeks to observe not how the patient fits into a class, but in what way, quite specific and singular, he deviates from average behavior, in order to adapt the technical response. As a different, and not yet sufficiently problematized, kind of personalized medicine, neuro-rehabilitation applied to personalized prostheses deserves epistemological and ethical attention, since it raises different questions from those of cancerology: where to trace the technical limits of personalization, both upstream (i.e. to what extent can data and models render the complexity of the organism?) and downstream (to what extent can a device be personalized, given the technical limits that separate it from a real organism?).

CLARKE, Jerome

The Pennsylvania State University

DIGITAL COLORLINE: ON ALGORITHMIC BIAS AND RACE DATA

This paper explores how the problem of algorithmic bias imbricates with what W.E.B. DuBois called the "problem of the colorline" via the abstractions of three different intelligences in racial information processing: statistician, programmer, and network. I depart from today's scapegoat for the charge of algorithmic bias, the miseducated algorithm. The entry of artificial neural networks into economy and polity coincides with the redefinition of machine bias from its earlier connotations: specious functions and functionary prejudice. Today, institutions respond to the political issue of unjust outputs with the claim, "for our algorithm to be fair, we need better data." Such framing depoliticizes bias into statistical dilemmas of corrupt data, misclassified data, or predominantly: not enough data. In these cases, yesteryear's solutions of debugging software and hiring diverse programmers appear insufficient; both stumble upon the challenge presented by convoluted and opaque networks in which triangulating, say, racial ignorance is a Sisyphean task. Both these solutions and the apology for miseducation bracket the question of whether we need these algorithms at all. More importantly, the concept of algorithmic bias mystifies the fact that these unjust outputs are always machine, programming, and statistics problems inasmuch as these three are functions of a corrupt society. I track the movement of a race datum—representing the face of a black (U.S.) freeperson—from its extraction to its processing to relate racialization to the universalizing tendency of datafication. Race data betrays any presumption that data can be untouched by classificatory schema and normative considerations. "Raw data" is as oxymoronic as 'black freeperson' of whom, to take a line from Theodor Adorno, "[t]he abstraction […] lies not in the thought of the sociologist, but in society itself." Instead of framing design as a terrain for struggle, I argue for the 'uncomputing' of certain societal functions, namely police surveillance.

COECKELBERGH, Mark

University of Vienna

RE-IMAGINING TECHNOLOGIES: AI AS PROCESS AND PERFORMANCE

When we talk and think about a specific technology, we have an image in mind of that technology. Typically, we imagine technologies as objects: material objects such as the prototypical hammer, but also so-called immaterial objects such as software. For example, when we think about artificial intelligence (AI), we imagine a robot, a computer, an app, or other things. This way of talking about technology fits most Western worldviews, which present the world in terms of being and beings: humans, non-humans, facts, etc. But in Western metaphysics we also find another tradition, process philosophy, according to which the world is not a collection of static objects, facts, or individuals, but a changing, dynamic process of becoming (rather than being).

Focusing on the example of AI and acknowledging previous thinking about technology and time/process, this talk presents a preliminary exploration of what a process approach to technology could mean and imply for understanding and evaluating technology. It investigates what happens to the ontology and phenomenology of AI once we (re-)imagine that technology and our relation to it as a process and a performance. It suggests that this angle may reveal aspects of technological praxis and experience that have not yet been fully captured by existing approaches in (post)phenomenology, and that it may also offer a fresh anchor point for the normative evaluation of technologies. More specifically, the talk offers the idea that humans and non-humans are entangled in processes of becoming, argues that these processes cannot be described separate from human experience, meaning, and action, and recommends that we experiment with an ethics of technological processes and performances, for example an ethics of AI that is not an ethics of AI-objects but an ethics of AI-processes and AI-performances.

COGGINS, Thomas

TU Delft

ALWAYS "ON STAGE": HOUSEHOLD ROBOTS, PRIVACY AND DRAMATURGIC ANALYSIS

Erving Goffman claims that the vocabulary of dramaturgy includes many concepts that can be used to describe how humans coordinate with one another during their day-to-day lives. When we interact with other people in public settings we follow behavioural patterns analogous to the scripts actors memorise to embody characters. While we have some room to improvise, we tend to adapt our behaviour to the expectations of others who serve as our audience.

We play numerous characters throughout our day, shifting from one role to the next as we interact with different people in different contexts. Goffman makes clear that we cannot stay in character indefinitely and must step "off-stage" to tend to needs we cannot (adequately) satisfy while performing for an audience.

Numerous privacy scholars have used this idea of stepping off-stage to justify why we deserve privacy. We require time alone to attend to our personal needs, act autonomously and maintain intimate relationships. Although we can tend to these needs to some degree in public, privacy affords us substantially more freedom satisfy them. In liberal democracies, our homes ideally serve as the principle place where we can expect this type of freedom and act without worrying that other people will call us back on stage.

I argue in this paper, that human-like household robots problematise our ability to remain off-stage while at home. Studies have consistently shown that people tend to react to robots which mimic human social behaviour by following behavioural routines they otherwise use to coordinate with other humans. When this occurs inside our homes, I argue, we step back onto the public stage and perform in character for a machine, thus limiting our ability to enjoy the freedoms privacy afford us.

COLLOMB, Cléo

Compiègne University of Technology

DATA VISUALIZATION: A NEED FOR SLOWER NARRATIVES (PANEL)

Data visualization feeds imaginaries. It leads to fantasies of direct access to "the social", or even to "the reality" through the collection of digital traces in massive quantities, which are automatically processed by data-mining algorithms whose results seem to "magically" appear on our screens. Digital traces are unintentionally abandoned by individuals through their everyday connections. Those traces are then collected and processed automatically by algorithms. Unintentionality and automatisation give the impression that human subjectivity is avoided during various stages of data collection and data mining, thus reinforcing the claim for a direct access to reality, transparency, truth... and even to the future. Indeed, the collect, process and representation of data are often caught in and ideal of prediction. It would be possible to predict human behaviour, for the benefit of marketing but also of intelligence and security. Datavisualization's imaginaries resonate with those of intelligence and security.

Our panel gather philosophers (subpanels 1 and 4) and computer scientists (subpanels 2 and 3) who design datavisualization's tools together in a project funded by the French Ministry of the Armed Forces. The aim of our panel is to contribute to the deconstruction of the great technological story that escort datavisualization and intelligence's tools by counteroffering a slower narrative produced from the inside of technological process which focuses on the requirements of technical materialities and the care for the user.

We will demonstrate that far away from the fantasies of the automation and prediction that leeds to instrumental conception of the human-machine relationship (the great story), our data collection and visualization's tools offer another worldview (our slower narrative), that allows a human-machine companionship (Haraway).

COLLOMB, Cléo

Compiègne University of Technology

TECHNOLOGICAL IMAGINARIES OF DATA VISUALIZATION AND SECURITY INTELLIGENCE

The first aim of this subpanel is to hightlight the technological imaginaries that escort datavisualization's tools (which we consider as true technical objects (Simondon) and not as simple tools), with a focus on the Intelligence field, through a semiotic analysis of a corpus we gathered from extracts of cultural and instutional productions. Technological imaginaries are indeed constructed around many texts that build up representations of datavisualization tools : novels, films, photographs, media productions of different kinds, and so on. In other words, a range of narratives that are read, seen, and heard in daily life builds up the representations that humans have of datavisualization's tools and the relationships they can have with them. Narratives, from a materialistic point of view, play an important part in the way humans and technological objects interact.

The second aim of this subpanel is to demonstrate how these imaginaries participate to a dominant ideology - anthropocentrism - that is expressed in at least two ways. Either the technical object is reduced to a purely instrumental role: it is a tool that may be more or less sophisticated but only exists because of its usefulness to humans. Or else, in an expression of technical fetishism, it is elevated to the rank of a sacred object to which humans delegate their dreams and fears of power (regarding Simondon, culture entails these two contradictory attitudes towards technical objects). Now that we have shown how this anthropocentric conception of datavisualization's tools circulates in everyday life, we will try to propose a different way to consider the relationship between humans and machines, through a concrete and local case study.

COLLOMB, Cléo

Compiègne University of Technology

PHILOSOPHICAL CONCLUSION

The aims of this concluding subpanel are to propose a different way of considering the relationship between humans and machines in data visualization tools. We want to step aside from the great story of data visualization and propose a slower narrative, by penetrating at the heart of technological conception and by giving voice to the ones that produce technological objects such as Stemic and Search Clear/Dark.

If the dominant technical imaginaries put into circulation an anthropocentric vision of data visualization tools, we think (with Simondon's writings) that it is above all due to a lack of knowledge of technical reality. What is interesting is that the technologists at Intactile Design and Aleph-Networks deal every day with these non-human beings that are computational machines. They have an ability for ontological decentering that allows them to accommodate a plurality of modes of existence and therefore also a plurality of users and a plurality of worldviews.

Perhaps paradoxically, it is by being able to deal with technical reality (a reality that is sometimes so foreign to human culture and reality) and by being able to welcome its difference, that our technologists demonstrate an ability for decentering.

The dominant and anthropocentric technical imaginaries that escort datavisualization tools put into circulation a poor conception of technical materiality. This leads, in our opinion, to the development of tools that impoverish the potentialities of users. These users find themselves caught in a relationship of enslavement with their machines. We believe that by giving voice to people who care about technical materiality, we are putting slower narratives into circulation. Through these narratives, humanity and technicality enter into coupling relationships that end up opening new potentialities and new imaginaries.

CORTESE, João

University of São Paulo

Co-authors: Adriano BECHARA, Fabio COZMAN, Marcos Paulo DE LUCCA-SILVEIRA

IS EXPLAINABILITY A FIFTH ETHICAL PRINCIPLE FOR AI APPLICATIONS IN MEDICINE?

AI applications can be developed with the aim of augmenting predictive power. If one is concerned with medical diagnosis, for instance, a good AI algorithm should be the most accurate possible. But what if a better algorithm is a “black box” one - should one adopt it instead of another with lower prediction power, but more “transparent” in its operation? It has been recently claimed that explainability should be added as a fifth principle to AI ethics, supplementing the four principles from Bioethics: Respect for Autonomy, Beneficence, Nonmaleficence and Justice. We propose here that with regard to AI, and notably with respect to AI applications in health, explainability is indeed a new dimension of ethical concern that should be paid attention to, a dimension that brings new requirements to the traditional principlist framework. On the other hand, we do not think that explainability in itself should necessarily be considered as an ethical “principle” besides the four classical ones from the Bioethics Principlism. We think of explainability rather as an epistemic condition for taking into account ethical principles, but not as an ethical principle in itself. We argue instead that explainability is an element intrinsically associated with the principles of Respect for autonomy, Justice and Nonmaleficence in cases where these are opposed to beneficence. We present here some important distinctions regarding the notion of explainability, with consequences to the ethical aspects concerning it. We do think that explainability is an important demand in Medical AI Ethics; we simply argue that it should not, for that reason, be considered as a fifth ethical principle, but as a means to achieve the already established ethical principles.

CORTI, Laura

University Campus Bio-Medico of Rome

DEVELOPING AN ENACTIVE APPROACH TO NEUROPROSTHESIS

Neuroprosthesis aims to restore the sense of touch entirely in the active and passive component. From an engineering perspective, the essential focus is on functionalities, DoF (Degrees of Freedom) and the capacity of precise grasping.

In the last decade, many studies have been published concerning the frontier of neural elicitation of tactile sensation as a helpful way to control the prosthesis; mainly, we can find empirical evidence that provides examples of the use of sensory information to control the dexterity of a prosthetic hand finely.

This finding is significant to understand how the concepts of experience and sensation are going to transform biomedical engineering; from a philosophical perspective, it implies the necessity to build an adequate framework to comprehend this shift.

Therefore, this contribution proposes a cross-disciplinary approach in which the philosophy of cognitive science (Enactivism) can contribute to elaborating a new pathway of understanding the experience mediated by neuroprosthesis.

CORTI, Laura

University Campus Bio-Medico of Rome

ENVISION A NEW TECHNOLOGICAL HOME FOR ELDERLY

In 2018 Bill Gates affirmed that “I can envision a future in which robotic devices will become a nearly ubiquitous part of our day-to-day lives.” (Bill Gates, 2007). Is this prediction coming true?

The International Federation of Robotics (IFR) claims growth in the next few years in service robots is estimated at between 38% for professional service robots and 10% for service robots for entertainment. Robotics is increasingly coming into contact with human beings in an industrial environment and the daily and social dimension of life. In particular, in our everyday experience, the increasing number of autonomous systems or simple forms of robots are changing our everyday lives, from the most straightforward examples, such as kitchen robots and robot vacuum cleaners, to the more complex tools, such as social robots.

Thanks to the most recent technological researches, the introduction of robotics in the domestic field is becoming a reality, and we can foresee a steady increase in the next years of development of more and more performing robots able to support and/or replace humans in the domestic domain.

Starting from the analysis of this scenario, this contribution wants to deepen the introduction of these technologies in the home care of the elderly, highlighting the strengths and difficulties that can be found.

The working-hypothesis claims that the main difficulty is accepting the robot as a home assistant, while the main advantage can be found in the scaffolding in daily activities, such as cleaning the house, monitoring health conditions, and creating a relationship between the older person and the robot.

In conclusion, this contribution aims to investigate, from a philosophical point of view, the ethical and social implications of the introduction of robots in elderly home care in order to promote the creation of not only effective but also affective co-operation.

COUPAYE, Ludovic

University College London

THE NON-HUMAN AGENCY AND NON-HUMAN RELATIONALITY OF A PRINTER: THE CHALLENGE OF TECHNICAL OBJECTS TO CONTEMPORARY ANTHROPOLOGICAL APPROACHES

L. Coupaye investigates how autonomous objects, living or not (such as printers and yams), present to anthropology an analytical challenge, whereby social, communicational, cognitive or metaphorical understandings of agency do not empty the complex (moral or political) "milieu" they generate in their vicinity and beyond. Combining anthropological discussions of relationality and "posthumanism" with elements of G. Simondon's and A. Leroi-Gourhan's approaches to technical objects, he builds on the anthropology of technics and tries to forge ethnographic tools which would avoid us falling on either side of the determinism-constructivism divide.

COX, Hanne

PhD student at Linköping University

Co-authors: Anna MELNYK, Amineh GHORBANI, Thomas HOPPE

UNRAVELING VALUE DYNAMICS IN THE TRANSITION TO ENERGY DEMOCRACY

In the European Union, energy democracy (ED) is considered a desirable policy goal that can be achieved through decentralization and digitalization of the energy sector. One way to do this is by facilitating community engagement which empowers local communities to pursue a transition to a more sustainable and environmentally friendly energy system and form community energy initiatives (CEI). ED contains a set of values important for communities like democracy, social justice, recognition and transparency as well as decentralized energy systems like sustainability, reliability and affordability. Digitalization also brings along values like privacy, safety, security and autonomy. This paper focuses on the value dimension of the transition to energy democracy and suggests the role of CEIs to be agents of change in zero-carbon energy transition. Although new policies are being developed to support and empower these communities, there are still some challenges that lead to value conflicts and issues with social justice, discrimination and exclusion. By conceptually grounding values on different disciplines we argue that these values and value conflicts are always occurring within a value system. We claim that an exploration of value dynamics, a climate within a value system, is necessary to understand value conflicts and interactions between different values in CEIs. Our goal is to extract insights about values and their relations and interactions that constitute CEI's values dynamics from two case studies in the Netherlands, Energie-U (city of Utrecht), and BRES (city of Breda). Employing the qualitative data collected during interviews with this research we aim to inform democratic decision-making in the process of a transition to energy democracy.

CRUZ, Cristiano

Aeronautics Technological Institute (ITA) - Brazil

COLONIALITY AND TOP-DOWN AND BOTTOM-UP APPROACHES TO DECOLONIZING PHILOSOPHY OF TECHNOLOGY

According to the decolonial theory, the hegemonic neoliberal and globalized order is a Western construction that manages to build an episteme (or regime of truth) and ways of being that support the very arrangement of power that produces or shapes them. This disempowering, racist, patriarchal, and environmentally non-sustainable world we live in results from a triple and mutually reinforcing imprisonment: coloniality of power, knowledge, and being.

The mainstream philosophy of technology (PT) is also colonized. As such, their canonical understanding concerning technology and technical design cannot but reproducing coloniality. Yuk Hui and Ahmed Ansari acknowledge that and, through different ways, propose forms of decolonizing the philosophical thought concerning technology and technical design. Since they start from philosophy, scholars, and reflection and go all the way down to decolonial design, technology, sociotechnical orders, knowledge, and ways of being, these are two types of a top-down decolonial approach to PT.

However, decolonization can also be advanced by bottom-up approaches. Examples of them can be found in decolonial technical designs, such as the Brazilian grassroots/popular engineering and Mohamed, Png, and Isaac's decolonial AI. They rely on an emancipatory dialogue of knowledge with poor, traditional, or marginalized people whom the designed solutions will be used by or will affect (most). This way, decolonization starts from critically learning from and teaching oppressed, uneducated people (or, at least, non-specialists) up to technical design, technology, and, as tried here, philosophy. That is why such approaches are called bottom-up.

In this presentation, these top-down and bottom-up approaches to decolonizing technology, technical design, and PT will be sketched and have their decolonial aspects highlighted. Some of their enlarging or decolonizing impacts on PT (i.e., on the ontology, epistemology, and politics of technology and technical design) are explained in another presentation.

CRUZ, Cristiano

Aeronautics Technological Institute (ITA) - Brazil

DECOLONIZING PHILOSOPHY OF TECHNOLOGY: ONTOLOGICAL, EPISTEMIC, AND POLITICAL ENLARGEMENTS

In the previous presentation, some decolonial theory's central elements were sketched as well as: 1) two strategies to decolonizing philosophy of technology (PT) and, then, decolonizing technical design and technology (top-down approaches), and 2) four different practices of technical design that can be called decolonial for their theoretical and methodological bases and outcomes (bottom-up approaches). [If only the present work is accepted, it will begin with a summary of what would have being presented in the first one.]

In this presentation, drawing on these two different and potentially complementary approaches, some decolonial claims are made concerning three of PT's main areas: the ontology, epistemology, and politics of technology and technical design. Such claims can be summarized as follows:

- Ontology. Technology and technical design have a wider relational mode of existence (than Simodnon's proposal); the design practice is unescapably partly an art; care and affection are fundamental for (a decolonial) technical design;

- Epistemology. Decolonial designs must draw on a dialogue of knowledge between the technical team and the supported/partner groups, which potentially enlarges what is conceivable and implementable; through such a dialogue, the supported/partner group can contribute with knowledge unknowable by the technical team; the problems to be sociotechnically solved must be known/seen in their broader social, political, and economic nature;

- Politics. The political dimension of technical designs must not be denied either ontologically or epistemologically; decolonial technical designs are (or can also be) a way of decolonizing Western critical reflection; decolonial technical designs' potential powerfulness can be at least partially explained by their commitment to overcoming the marginalized's problems and working alongside these people.

Besides presenting these claims in some details, three points will also be made concerning: The necessity for PT to know the plural empirical manifestations of technical design; PT's openness to learning from the (uneducated, non-specialized, marginalized) people; How to foster decoloniality through PT.

CUEVAS-GARCIA, Carlos

Technical University of Munich

Co-authors: Federica PEPPONI, Sebastian M. PFOTENHAUER

INNOVATION IMAGINARIES AND THE FUTURE OF INFRASTRUCTURE MAINTENANCE

Scholarship on the social dimensions of technology has increasingly taken an interest in the relationship between innovation and infrastructure maintenance. Scholars have particularly foregrounded (1) how the obsession with innovation crowds out attention to maintenance and other invisible work, (2) how innovations demand future maintenance, and (3) how ordinary maintenance and repair practices are innovative and creative. In this article, we introduce a fourth perspective by examining what happens when the decay and maintenance of infrastructures become the explicit target of high-tech innovation initiatives. We analyze the trajectory of a number of co-creative innovation instruments that the European Commission developed together with the robotics community and examine a number of projects that have been funded since 2014 to the present. We pay particular attention to the different forms in which the co-creative instruments have been taken up and implemented, and to the forms of collaboration and participation that they aim to articulate. Our case study raises important normative questions that deserve greater attention by scholarship at the interface of innovation and infrastructure maintenance, for example: How should infrastructures be cared for and by whom? How should the “right” level of infrastructure maintenance and need for innovation be determined -- and what does this mean for the design of innovation processes? At what level of governance -- municipal, regional, national, European -- should these questions be addressed? And who should take part in these innovation processes?

D'AMATO, Pierluca

Durham University

AN ECOSOPHY OF BIODESIGN: ON THE PROSPECTS OF A POST-HYLOMORPHIC TECHNOBIOME

Bernard Stiegler described exosomatisation as the practice through which humans extend their physiological organs to expand their capacities in relation to their milieus. Design can be understood as the practice directing exosomatisation and human niche-construction, producing and imposing specific relations through the environmental, mental and social spheres alike. While, with the notion of ecosophy, Fèlix Guattari highlighted the interconnection of these ecologies and reflected on the crises disrupting life across them, by developing the framework of general organology, Stiegler focussed on the relation between their configuration and the exosomatic organisation of inorganic matter. But what about organic matter? Its role in the ecosophical challenges we are facing with the Anthropocene seems often relegated to that of passive receptacle of systemic disruption. But what if it could have a more active role, be part of the solution, and not of the problem?

To answer this interrogative, this paper introduces the emerging field of biodesign. Still in its theoretical infancy, biodesign is powerfully imposing itself at the intersection of industry and art, filling the illusory gap between artificial and natural by meshing technology and biology to materialise a post-anthropocentric perspective over exosomatisation in which the technical is but one of the factors involved in a co-determination process of shared functions, habits and habitats. The paper will describe this perspective and show how it actively engages with what Deleuze and Guattari called the machinic phylum, the cross-phyletic set of forces common to every process of self-organisation, through a Simondonian rejection of hylomorphism, not only as an approach to fabrication, but as a way to see the world. As a practice that ultimately aims at redesigning human integration with the biosphere, biodesign proposes morphodynamic perspective that accounts for the emergence of forms rather than concentrating on their imposition on a matter reduced to passivity.

DABILA, Antony

IESD (Lyon-3)

WAR & VIDEO GAMES AND THE NEW ETHICS OF POLITICAL CONFLICT

"It is not absurd to attempt to diagnose a civilization on the basis of the games that particularly thrive there. Indeed, if games are factors and images of culture, it follows that, to a certain extent, a civilization, an era, can be characterized by its games".

This quotation of Roger Caillois, in his seminal work intitled Man, Play and Games, is a good theoretical instrument to study the influence of video games on the way war changed the perceptions on war and its fierceness. Since the beginning of the 1970s, video games simulating the experience of war exposed a large part of the youth born in the last third of the 20th century to a representation of political violent conflict, in an unprecedented ludic way. It is thus legitimate to ask if the relationship between human beings and war has been modified by this 'reform' of the technical and ludic field and to what extent it has influenced the perception and the ethics of politically motivated violence.

As a neutral starting point, this philosophical way to tackle the moral problem linking war and video games can allow us to answer, more precisely, to three main problems raised by the capacity of video games to make young generations experience war, namely :

- the role of video games in the constitution of a culture of violence in the age group of adolescents and young adults;
- the effects of playing warlike games on empathy and on the subject's capacity not to reify and trivialize the suffering of his fellow human beings;
- the functions occupied by video games staging warlike violence as a ludic equivalent to rites of passage.

DALIBERT, Lucie

University of Claude Bernard Lyon 1

EMBODYING AND APPROPRIATING IMPLANTS AND PROSTHESES: PHILOSOPHICAL, ANTHROPOLOGICAL AND SOCIOLOGICAL EXPLORATIONS (PANEL)

While philosophers of technology and scholars in science and technology studies (STS) have paid attention to the relations between humans and technologies or between users and technological artefacts, scarce attention has been given to bodies and technologies. Certainly, the cyborg and the posthuman have been delineated as figures that incarnate the contemporary intimacy of bodies and technologies and the porosity of their boundaries. However, while implants and prostheses characterise cyborgs and posthumans, how bodies and subjectivities are transformed by these technologies, how these technologies become appropriated and embodied, and how intimacy between bodies and these technologies is done in practice have been overlooked considerations.

Being fitted with a prosthesis or an implant does not take place in a vacuum, but is rather situated in networks of relations and embedded in norms. Likewise, technological imaginaries, especially as they relate to bodies fitted with and transformed by technologies, play a role in this process and might constrain what can or cannot be appropriated by particular bodies. In contrast to the widespread techno-fantasies and enchantments surrounding prosthetic and implanted technologies, experiences and daily life with the latter are not always success stories, but rather marked by pain, partial uses as well as failure and abandonment.

This panel proposes to initiate a conversation between researchers investigating whether and how people living with implants and prostheses can appropriate and embody these technologies, and how these empirical cases can shed light on and help us refine our conceptual frameworks and categories. As such, (successful as well as failed) appropriation and embodiment, in particular their conceptual and empirical significance will be at the forefront of the presentations and discussions taking place in this panel. Indeed, these concepts have been mobilised in philosophical, anthropological and sociological research on implants and prostheses.

To attend to their contours and meaning, the panel will be organised around 4 papers stemming from different disciplines discussing experiences with technologies that entail different appropriation and embodiment processes and issues : retinal and cochlear implants, implantable cardiac devices (such as pacemakers and cardiac defibrillators) and limb prostheses. A general discussion between all presenters will close this panel.

DALMASSO, Anna Caterina

University of Milan

Co-author: Sofia PIRANDELLO

AUGMENTED REALITY, AUGMENTED IMAGINATION

Human beings are characterized by a virtual engagement with their environment, by their capacity of projecting themselves in relation to the possible and to extend into technological prostheses. Any interface, tool, or device, as long as it mediates our relationship with the world and others, contribute to designing and informing our reality. We might call imagination, or imaginative performativity, this capacity of the human body to systematically overcome its merely «biological» possibilities and its tendency to virtually project itself in time and space. But, if imagination is understood as the very foundation of technicity – as the capacity of hacking or hijacking the sensible matter by revealing in it unprecedented affordances – how can imagination itself be augmented in the relationship with technologies? The history of media and optical devices is underpinned by the constant attempt to externalize consciousness and make visible our cognitive processes. A specific technology will be taken into account: Augmented Reality (AR). AR presents a high degree of interactivity and manipulability, both in complex tasks, such as designing tools or assisting during surgery, and for everyday activities. AR does not simply provide information about the environment. Through a strategy of virtual enhancement, it creates new layers of reality, adding things and functions to it and revealing unprecedented affordances. The hypothesis that AR is a technology of the imagination will be therefore discussed. Does AR externalize and allow to perceive the imaginative work always afoot in the interaction between human beings and their own space of action? Becoming a candidate for being a prosthesis for imagination, AR reveals its operational character, highlighting its tendency to interface with technical objects.

DALY, Anya

University of Melbourne

THE INCORPORATION OF THE VIRTUAL: THE PHENOMENOLOGY OF IDENTIFICATION AND AGENCY IN VIRTUALITY

Virtuality has been described as the media of disembodiment wherein the mind is conceived as pure data and the body as mere vehicle. Such views depend on a tacit Cartesian mind-body dualism which served to underwrite onto-theological investments in souls and other-worldly realms. Now some accounts of virtuality and cyber-theory also seek to sever the connection between mind and body so as to uphold the mind's superiority and absolute autonomy, as if 'the ghost in the machine' can abandon the body-machine to take up residence in a technological-machine.

This view offers much appeal to some cultural theorists who propose that virtuality provides a means of transcending gender, race, class, disability, through a transcendence of the body. Proponents of posthumanism pursue a similar direction in their accounts recognizing the potential of virtuality to challenge the division between the 'real' and the 'represented', thereby reconfiguring identities beyond the physical and potentially contributing to the dismantling of Eurocentric humanism.

This paper argues that, while not discounting the value of the challenge to euro-centric humanism, the above accounts' reliance on a so-called 'disembodied' agency is erroneous; 'disembodied' agency depends on embodiment, the body already incorporates the virtual. That it is possible to set up illusory self-identification with a virtual body through our capacities of visuo-tactile perception and cross modal congruency effects is without question. How and why this is possible requires elucidation. This paper seeks to further our understandings by drawing on Merleau-Ponty's analyses of body schema and body image to explore how the translation from physical world to virtual world is achieved; specifically, what contributes to the sense of proprioceptive shift from actual to virtual body, and how is the sense of agency and ownership established?

DAUS, Zachary

University of Vienna

VULNERABILITY, TRUST AND HUMAN-ROBOT INTERACTION

Recent attempts to engineer trustworthy robotic systems often conceive of trust in terms of predictability. Accordingly, to trust a robotic system (or a human) is to be able to predict what the robotic system (or human) will do. Design elements of robotic systems that seek to engender trust thus often focus on strategies such as making decision procedures transparent, replicating human movements, and developing trust-building training programs. I argue that all of these design strategies for engendering trust overlook a significant condition for trustworthiness: mutual vulnerability. Humans trust one another not merely as a result of being able to predict the actions of the other, but as a result of being mutually vulnerable to similar risks. Co-workers, for example, trust each other not merely because they can predict each other's actions, but because both are mutually vulnerable to the consequences of the potential failure of their joint work project. The necessary condition of mutual vulnerability for trustworthy relations poses a significant obstacle to the establishment of trustworthy human-robot interaction. This is because robotic systems lack the affective intelligence that is necessary to be vulnerable. Despite the problems posed by mutual vulnerability for the achievement of trust in human-robot interaction, I will nonetheless propose potential solutions. These solutions will center around bringing users and creators of robotic systems into greater interaction, so that users of robotic systems can recognize the vulnerability of the creators of robotic systems and how this vulnerability is tied to the success (or failure) of the robotic systems they are using.

DE BOER, Bas

University of Twente

Co-author: Peter-Paul VERBEEK

LIVING IN THE FLESH: TECHNOLOGICALLY MEDIATED CHIASMIC RELATIONSHIPS IN TIMES OF A PANDEMIC

During the current pandemic, it became clear that people are vulnerable to potentially harmful nonhuman agents, as well as that our own existence potentially poses a threat to others, and vice versa. This suggests a certain reciprocity in our relations with both humans and nonhumans. In The Visible and the Invisible, Merleau-Ponty introduces the notion of the flesh to capture this reciprocity. Building on this idea, he proposes to understand our relationships with other humans, as well as those with nonhuman beings as having a chiasmic structure: to sense, or perceive another entity in a particular way simultaneously implies to be sensed or perceived in a particular way by this other entities.

In Technology and the Lifeworld, Ihde briefly introduces the notion of chiasm to point to the fact that our perception is constituted by how we are immersed in the world, and that we never have complete control of the nature of this immersion. In this paper, we substantiate this idea by arguing that Merleau-Ponty's notions of "flesh" and "chiasmic relation" must be integrated into postphenomenology to clarify the reciprocal nature of human-technology relations. Furthermore, we show how a postphenomenological perspective expands on Merleau-Ponty: first, it more radically interprets the notion of flesh as pointing to a general structure in which entities interact with one another, also beyond the human sphere. Second, it augments Merleau-Ponty by drawing attention to how technologies mediate chiasmic relations. This is clarified through the example of the facemask, which (1) reveals the chiasmic structure of our relation with nonhuman entities, and (2) shows that technologies co-constitute particular interpersonal relationships by making humans present to one another in a particular way. We suggest that these aspects are not unique to the facemask, but point to a general technologically mediated chiasmic structure of human-world relations.

DE CESARIS, Alessandro

University of Turin / Collège des Bernardins, Paris

DIGITAL METEMPSYCHOSIS? AGAINST A DUALISTIC IMAGINARY OF IMMERSIVITY (PANEL)

This panel aims at providing a critical analysis of the way how technological experience has been described in the contemporary debate. In particular, we will argue that the "immersive" character of technological experience is often described as a "migration" of the subject to a new – artificial – world. According to this interpretation of immersive experience, the subject is "detached" from his/her own reality and gains access to a new one, often with a new identity, a new body and a different sensorial apparatus. We will call this model "Two-Worlds Model" (2WM), and we will try to show why it does not offer a satisfactory theoretical framework in order to fully describe – and understand – our relationship with technological devices.

The 2WM is not new, and it is not a product of the discussion on digital media. It can be traced back to Plato, and it is present in many loci of the history of Western culture: the analysis of the effects of the discourse in ancient rhetoric (Aristotle, Quintilian), the experience of reading as access to a virtual reality (Ryan), the immersive character of painting (Grau). In this model, the reader is always the protagonist of a sort of "metempsychosis", her soul migrates to another reality just like Alice through the looking-glass. With the explosion of digital media in contemporary society, the 2WM has become more and more common not only in the theoretical debate, but also in the public sphere, as a shared technological imaginary.

In this panel, we will offer a critical and genealogical analysis of some aspects of the current debate about digital media, by showing how they can be recognised as instances of the 2WM. In particular, we will show the limits of this theoretical model from four different points of view:

1. The who: the first paper will focus on the relationship between physical subject and digital identity (avatar), and it will point out the shortcomings of those theories that postulate a distinction between the two.

2. The what: the second paper will focus on the object of digital experience, and it will show how the 2WM leads to paradoxes when it comes to describing the effects of agency in the digital context. In particular, the paper will focus on the case of cyber-violence.

3. The how: the third paper will analyse the acoustic dimension of technological experience. It will show that the 2WM rests on a mainly visual interpretation of digital experience, and it will point out how the reference to sound can help find a new continuity in our experience.

4. The where: the final paper will address the question of "where" technological experience actually takes place. By discussing the notions of "telepresence" and "cyberspace", it will propose a critical analysis of the notion of "spatiality" in the case of digital media.

DE CESARIS, Alessandro

University of Turin / Collège des Bernardins, Paris

STILL THERE: A MEDIA-THEORETICAL CRITIQUE OF THE NOTION OF "CYBERSPACE"

Our understanding of digital technologies rests upon a large number of spatial metaphors: among those, the most famous is certainly the idea of the World Wide Web as a cyberspace. In this paper I will argue that the notion of cyberspace is the fundamental assumption necessary in order to apply the 2WM to digital experience. However, the representation of cyberspace as an actual "space" leads to a great number of paradoxes and misrepresentations.

In this paper, I will argue that the 2WM is a theoretical escamotage used to avoid the description of the actually medial nature of immersive experience (one that can be compared to Plato's dualism or to Leibniz' theory of the possible worlds). Instead of focusing on the medial nature of immersivity, it is much easier to juxtapose different dimensions, even though this move ends up generating more problems than it solves: in fact, it becomes very difficult to describe the interaction between these two dimensions, and keep the unity of technologically mediated experience.

In particular, the paper will show that two misunderstandings shape our technological imaginaries: our understanding of spatiality and the role of space in technologically mediated experience. Firstly, cyberspace is spatial only in a topological, but not in a Euclidean sense. Secondly, while we have a spatial relationship to digital media, there is no spatial experience inside them.

DE DOMINICIS, Ida

University Of Salerno

THE ORIGIN OF LANGUAGE AND TECHNIQUE IN LEROI-GOUHRAN

Could we say there is an interaction between the brain's areas, which affect language and technical ability? Could we say that Leroi-Gourhan is a forerunner of the current studies about this type of interaction? In this paper, we will examine the studies of Leroi-Gourhan, in particularly his analysis about the spreading of a brain's part, the Cortical Fan, containing the brain's areas related to movement and language. Leroi-Gourhan claims in his main work, Gesture and Speech, that «the convexity [of the brain] opens up literally like a fan and this opening favour the development of all the functions that belong to this new part of the brain cortex». This fan is the place of the neopallium or neocortex, a new training bark developed in mammals and especially in Homo sapiens, which is home to sensitive correlations and an association centre. This bark borders to Broca's one, the site of the speech production. Although, the comprehension of the interactions of those barks and the understanding of the language turns out to be impossible without the script as technical ability; in other words, we cannot exclusively focus on the brain's structures or internal morphological part, we have to compare each functional system: «we possess no direct means of studying language before writing. […] The problem of language is not a matter of lingual muscles. Tongue movements served for processing food before they had a phonetic function […]. The answer to the problem of language does not lie in the mandible but in the brain». We will also try to estimate the initial condition of Homo sapiens's body structure as the necessary condition, which let this hominid to speak. Furthermore, carefully displaying the author's analysis, we will be outlining similarities between the evolution of the language and the development of the technical ability.

DE JESUS DE PINHO PINHAL, Jessica

Berlin Institute of Technology

WISDOM AS AN EPISTEMOLOGICAL COMPASS: NAVIGATING AI IMAGINARIES TOWARDS SUSTAINABLE FUTURES

Both Artificial Intelligence (AI) advocates and critics claim that it will radically change the world, for the best or the worst. However, despite an apparent novelty, this divergence falls into the well-known dichotomy between technological determinism and social constructivism. What is new is the reframing of this divide around the epistemology of technoscience. Tech visionaries' imaginaries depict AI with universalism and Baconian objectivity as epistemic values to justify the global scale on which these systems operate. Critical voices, in contrast, denounce this epistemic imperialism and its categorisation fetichism and warn against the possibility of the domination of predictions over facts. This quarrel risks leading the development of ethical AI to a deadlock.

This paper explores eco-socio-technological imaginaries built upon the findings from xenofeminist, critical race and degrowth studies. It proposes human wisdom as superior to the dried statistical intelligence of automates to overcome this cleavage. Wisdom is the quality of having good judgement augmented by a moral dimension. It does not refuse experience and generalisation while being collective and situated in a particular context. We speak, for instance, of Eastern wisdom.

Firstly, I observe that Enlightenment-era rationalism has led to the positivism of colonialist industrial capitalism. The postmodernist answer has, until now, limited itself to deconstructing its predecessors without constructing any alternative. While AI rehabilitates both inductive and implicit knowledge, its statistical functioning relies on worldwide, insatiable and exploitative data extraction. Then, I analyse local and bottom-up counternarratives where data, technological literacy and infrastructure are decentralised and non-hierarchical, and where we systematically weigh the global benefits of these systems against their social and ecological impact. Finally, I argue that the reinvigoration of wisdom will enable new, reasonable and healthier relationships with technology. Only these wise technological imaginaries will allow the development of AI for Good.

DE JONG, Marit

Harvard University

Co-author: Robert PREY

SEEING LIKE A RECOMMENDER: RECOMMENDATION SYSTEMS AND THE TECHNICAL CODE OF BEHAVIORISM

Our lives are increasingly mediated, regulated and produced by algorithmically-driven software; often invisible to the people whose lives it affects. Online, much of the content that we consume is delivered to us through algorithmic recommender systems (hereafter 'recommenders'). Although the techniques of such recommenders and the specific algorithms that underlie them differ, they share one basic assumption: that individuals are 'users' whose preferences can be predicted through past actions and behaviors. While based on a set of assumptions that may be largely unconscious and even uncontroversial, in this chapter we demonstrate that recommenders embody a "formal bias" (Feenberg, 2017) that has social implications. We argue that this bias stems from the "technical code" of recommenders - which we identify as a form of behaviorism.

We are interested in the episteme that grounds the development of recommenders. Studying the assumptions and worldviews that recommenders put forth tells us something about how human beings are understood in a time where algorithmic systems are ubiquitous (Cheney-Lippold, 2011). What we refer to as the 'behavioral code' of recommenders, we argue, promotes an impoverished view of what it means to be human. Leaving this technical code unchallenged prevents us from exploring alternative, perhaps more inclusive and expansive, pathways for understanding individuals and their desires. Furthermore, by problematizing "formations that have successfully rooted themselves in technical codes" (Feenberg, 2009, p.52), this chapter extends Feenberg's critical theory of technology into a domain that is both ubiquitous and undertheorized.

DE PAGTER, Jesse

TU Wien

EMERGING TECHNOLOGIES AND THEIR IMAGINARIES: THE AMBIVALENCE OF TECHNOLOGICAL POTENTIAL

The aim of this contribution is to address the issue of ambivalence concerning the role of technological potential within the notion of technological imaginaries. Thereby the specific focus is on the deployment of the notion for the analysis and understanding of emerging technologies. This ambivalent element is explained as follows: on the one hand the concept of the technological imaginary emphasizes and analyzes the phantasmatic and utopian/dystopian notions of emerging technologies while on the other hand highlighting the speculative construction of novel social realities based on the futures of emerging technologies. In order to elaborate on approaches towards studying and analyzing imaginaries as the drivers behind the notions of emerging technologies, the arguments will be accompanied by examples from the author's own research into robotics as an emerging technology.

After that, the presentation will elaborate on the implications of the arguments above for philosophy of technology in general and more specifically regarding its understanding and analysis of emerging technologies. The central aim in that regard is to engage in potentially novel approaches towards the way in which imaginaries of emerging technologies are deployed. Approaches which not only critically analyze technological imaginaries in relation to emerging technologies, but also speculatively engage with their content. In this way, the idea is that technological potential can and should actively be understood in order to deliberately compose new forms of collective agency around emerging technologies. Future emergence, in other words, is approached as something that can be part of philosophical deliberation. As such, the presentation implicitly argues for new forms of philosophical practice while making references to the influential empirical turn that has had a strong effect on philosophy of technology in recent decades.

DEAN, Wesley

Department of Food and Resource Economics, University of Copenhagen

Co-author: Paul B. THOMPSON

CONSUMER OR CITIZEN? COMPETING MORAL VISIONS OF AN AGRICULTURAL FUTURE

This paper examines two competing visions of sustainable agriculture which both consider a role for new forms of biotechnology. The US Department of Agriculture's Agricultural Innovation Agenda published in 2020, partly as a counter to the European Commission's Farm to Fork Strategy – For a Fair, Healthy and Environmentally-Friendly Food System, frame two possible futures for the global governance of gene editing. Following the work of Burri (2015), we ask of these documents: What are the envisioned objectives of technological innovation; methods to balance risks and benefits; and frameworks of governance? Finally, how do these imagined relationships of governance shape our understanding of the subjects of agrotechnology? Respectively, we find these documents frame a profit oriented versus a democratically designed food system; deregulation of a regulatory framework rather than an examination of risks across a food and nutrition system; a sustainable-intensification approach instead of a food-system model with co-benefits for nutrition, food quality, climate, circularity, and communities; and biotechnology as the necessary outcome rather than sustainable biotechnology as an unguaranteed possible alternative in the EU commissions document. To frame these results, we consider the concept of a sociotechnical imaginary as described by Jasanoff and Kim (2015) as a conceptual toolkit to uncover the values undergirding these documents. We then examine the proposed relationships between communities of agricultural innovators, regulators, and their publics through the prism of trust. Scheman (2010) argues scientific objectivity arises from shared judgments within a scientific community supported by practices that cultivate trust. Following Scheman, we propose that If publics impacted by biotechnology are to be drawn into democratic deliberation over their governance, they must be welcomed by these communities of experts. For trust to grow in this newly formed and extended community, experts must trust the newcomers and welcome them with hospitality.

DEFILIPPI, Fabrizio

Université Paris Nanterre

TECHNOLOGIAL IMAGINARIES, FUTURE AND NECESSITY

Technology shapes both the material and symbolic organization of a society. Technology contributes in fact to the creation and emergence of “social imaginary significations” (Castoriadis 1998), through the establishment of social identity or a utopian reconfiguration of power (Ricoeur 1981). Additionally, the social perception of technology plays an important role in the creation of “visions of desirable futures” (Jasanoff 2015).

However, technology is not only a positive vector for imagining the future. Societies may face dangerous forms of “technological lock-ins” and illusory expectations around new technologies can arise, making it difficult to envision alternative futures. From this perspective, technology can be perceived as an impersonal and autonomous phenomenon that produces social significations by itself, beyond human choices, pre-determining the future evolution of societies.

By following the work of Cornelius Castoriadis on imaginaries, I would like to reflect on the role of technology in the emergence of the so-called “heteronomous societies” (Castoriadis 1998). My hypothesis is that a certain perception of technology contributes to strengthen an established imaginary of power and hide the process of “self-institution” that characterizes every society. In this sense, it is important to rethink the role of technology starting from Castoriadis’ focus on the creative and “instituting” dimension of imaginaries. I will argue that we should develop an imaginary based on possibility and not on technological necessity. This kind of imaginary could play an important role in resisting those be mainstream narrations that present technology as a unique solution to global challenges, proposing a one-way path that excludes alternative futures.

Castoriadis C. (1998), The Imaginary Institution of Society, MIT Press.

Jasanoff S., Sang-Hyun K. (2015), Dreamscapes of Modernity. Sociotechnical Imaginaries and the Fabrication of Power, University Of Chicago Press

Ricoeur P. (1981), Lectures on Ideology and Utopia, ed. George H. Taylor, Cambridge University Press, New York.

DEMENTAVIČIENĖ, Augustė

Vilnius University

How Virtual Surveillance Reshapes Our Political Thinking

Surveillance, following M.Foucault, G.Deleuze and others deemed as "classical" understanding, can be described as a complex of strategies and techniques aimed at collecting information about individual behaviour, actions, and attitudes with a goal to control and/or exert influence over these elements. These theories also imply a certain hierarchy of surveillance, where actors of power have influence over the masses. This hierarchical perspective is questioned by a recent strain of theories reflecting on technological progress, proposing schemes describing societies of universal surveillance (termed omniopticon, synopticon etc), where "everybody can watch everybody". The phenomenon of digital vigilantism comes up as an interesting case study to re-think this shift in terms of theorizing about surveillance in current day technosocieties. The transformation of the phenomenon of DV into a vast array of different digital activities (hacktivism, scam biting, and cyber-stings etc) allow to see DV as specific way of new virtual surveillance, which reshapes what is political. Do digital politics empower citizens more than ever, or is it just a smoke screen for even more expansive surveillance, dataveillance techniques, molding and shaping individual/collective identities without the realization of the subject? The discussion presented in paper is aimed at conceptualizing and explicating the transformation of acts deemed „political“ in the age of digital media and virtualized politics

DEMENTAVIČIENĖ, Augustė

Vilnius University

Co-author: Fausta MIKUTAITE

REIMAGINING THE TRUTH: THE IN-DEEP RESEARCH OF ANTI-VACCINATION GROUPS IN SOCIAL MEDIA

How the conspiracy starts? When and how the truth and lie blurs? How to understand the new worldviews which is born in the alternative groups? We wanted to look behind the curtains in to imaginary systems of the group where ubderstanding if the technology, science are totally recreated? Data was collected by etnographical/phenomenological methods: researcher belonged to the groups for 1 year, observing, trying to understand the deeper dynamics of the groups. The content and its context is interpreted through the lenses of Post-truth which is necessary in the face of Covid-19 pandemic and therefore massive surge in online misinformation and conspiracy theories regarding the coronavirus. In our case the anti-vaccination group is connected with other alternative channels: anti 5G, anti-elite, anti-masks and so on. “Anti-Vaxers“ are not a stand-alone formation, but a part of a much bigger and radical discourse whose other targets are climate change science, women’s and LGBTQI rights and in our case anti NATO, anti EU discourse.

DEMICHELIS, Remy

University of Paris Nanterre

AI'S DEEP ETHICAL PROBLEM

Artificial intelligence (AI) systems, such as machine learning algorithms based on Bayesian rules and more especially deep learning, have allowed scientists, marketers and governments to shed light on correlations that remained invisible until now. Before the so-called “Great AI awakening”, the dots that we had to connect in order to imagine a new knowledge were either too numerous, too sparse or not even detected. Sometimes, the information was not stored in the same data lake or the same format and was not able to communicate. But in creating new bridges of knowledge with AI, many problems appeared such as bias reproduction, unfair inferences or mass surveillance. Our aim is to show that, on one hand, the AI’s deep ethical problem lays essentially in these new connections made possible by systems interoperability. In connecting the spheres of our life, these systems undermine the notion of justice particular to each of them, because the new interactions create dominances of social goods from a sphere to another. These systems make therefore spheres permeable to one another and, in doing so, they open to progress as well as to tyranny. On another hand, however, we would like to emphasize that the act to connect what used to seem a priori disjoint is a necessary move of knowledge and scientific progress. Therefore, AI is refreshing ethical and knowledge theory concerns long-forgotten.

(This paper, if accepted, could fit in a conference on Fears and expectations about technology.)

DERECLENNE, Emilien

Compiègne University of Technology

MUSICAL IMAGINATION SITUATED

Breaking with the cognitivist tradition, proponents of 4E cognition approaches found resources in material anthropology (Tim Ingold) and cognitive archeology (Lambros Malafouris), as well as in the French philosophy of imagination and technics (Gilbert Simondon, Bernard Stiegler) to think of cognition and imagination as "enactive", "embodied", "extended" and "embedded" (Van Rooij et al. 2002, Malafouris 2007, 2013; Ingold 2013; Hutto 2008, 2015; Rucińska 2014, 2016; Gallagher 2017; Hutto and Myin 2017; Dereclenne 2019, Van Dijk and Rietveld 2020). What makes the strength and originality of such a proposal is the reversal at the heart of it. Instead of a purely internal and representational process decoupled from our concrete engagements with the social and the material world, imagination has to do with our experience as engaged actors acculturated into social and technological practices. Imagination is not considered a state or a process inside the individual, which resulted from a history of interactions with the social and material world. Rather, it is integral to a temporally extensive process: a process that includes a history of technologically and socially mediated activities. In this presentation, I shall put some meat on the bones of this so-called "situated" approach to imagination, by emphasizing the technological constitutivity of musical imagination. Elaborating on my own experience as a former professional baroque cellist, I will offer a philosophical ethnography of imagination in musical practice. Drawing on Wittgenstein's notions of "expression" and "forms of life", I will show that taking the technological constitution of musical imagination seriously leads to think of musicality as a technologically shaped form of expressive and imaginative life.

DIDIER, Christelle

University of Lille

Co-authors: Diana-Adela MARTIN, Diane MICHELFELDER

ENGINEERING AND PHILOSOPHY: HAS THEIR CONVERSATION COME OF AGE? (PANEL)

The panel aims to further a conversation between being advanced by a forthcoming volume, Engineering, Social Science, and the Humanities: Has Their Conversation Come of Age? (Eds. Christensen, Buch, Conlon, Didier, Mitcham, Murphy). The panel will present the work of five contributors to the book with commentary by a sixth, all exploring perspectives and approaches from which scholarship and research on engineering have been carried out.

Following the Delphic injunction to know thyself, we reflect upon how the conversation between engineering and philosophy took shape, while projecting forward on ways in which we can enrich both disciplines. The contributions to the panel explore whether we still encounter failures in the dialogue between the two disciplines in the education (Martin) and professionalization (Buch) of engineers, how the engagement between philosophers and engineers can be of mutual benefit in founding a new academic field (Didier), and what central issues would need our attention in future research, considering an existential scale (Mitcham) or through the lens of a specific topic (Guchet). To accompany us in this self-reflective journey, the panel benefits from the presence of Michefelder (co-editor of the new Routledge Companion to the Philosophy of Engineering), as a discussant of each paper, who will shed light on the blind spots and opportunities for developing a research agenda and furthering the collaboration between philosophy and engineering.

DIDIER, Christelle

University of Lille, CIREL

CARL MITCHAM, LILLE AND THE EMERGENCE OF ENGINEERING ETHICS IN FRANCE

Lille, and more precisely The Catholic University of Lille, is one place in France where engineering ethics started to develop in the 90s. Although this field of academic interest couldn't be said to have had a great deal of success within the French context, especially if compared with the Netherlands, it has nevertheless made a significant contribution. But this story would not have been the same without Carl Mitcham's interest for and support given to the little team of scholars gathered by Bertrand Hériard Dubreuil from 1994 on. In 1991, back to Lille after a Master Degree in the US, Hériard Dubreuil taught courses in a completely new topic for France whose mere translation was problematic: "engineering ethics". Carl Mitcham and him met in 1992, in Lyon, and from this meeting many international collaborations occurred (until this panel today), contributing to build bridges between a handful of European scholars from various backgrounds, discipline and countries, interested in engineering culture and scholar from US first, then from all over the world. Although this panel would not exist without the tremendous energy of Steen Christensen, who made visible this community through the many volumes he edited, it would also not exist if Carl Mitcham did not give the Lille team, and myself, the courage to take engineering as a legitimate object for philosophy and SHS. Although there are places in France other than Lille where Carl Mitcham built strong and long-lasting professional relationships, such as with Daniel Cezeruelle in Bordeaux for example, this communication wishes to highlight the role that Mitcham has played in the development of engineering ethics in France, through his connection with Lille.

DIETRICH, Eric

Binghamton University

HAS PHILOSOPHY PROGRESSED IN ITS THINKING ABOUT AI? THE FIRST AND SECOND AI WARS

In 1978, the philosopher and AI researcher, Aaron Sloman wrote:

I am prepared to go so far as to say that within a few years, if there remain any philosophers who are not familiar with some of the main developments in artificial intelligence, it will be fair to accuse them of professional incompetence, and that to teach courses in philosophy of mind, epistemology, aesthetics, philosophy of science, philosophy of language, ethics, metaphysics, and other main areas of philosophy, without discussing the relevant aspects of artificial intelligence will be as irresponsible as giving a degree course in physics which includes no quantum theory (Aaron Sloman, 1978, The Computer Revolution in Philosophy: Philosophy of Science and Models of the Mind, section 1.2, p.3.)

Sloman's prediction failed . . . spectacularly. Here in the early part of the twenty-first century, many of today's most well-known and distinguished philosophers are happily unfamiliar with any technical developments in AI. And many philosophy courses of all types, including philosophy of mind, are taught today with only a passing reference to artificial intelligence. In fact, it is fair to say that most philosophy courses never mention any AI. Where AI is mentioned, moreover, the issues of primary interest, e.g. the ethics of job replacement or of robot caregivers in nursing homes, are issues that were of minor interest, at best, in the late 1970s. What happened? How could such an explicit and robust prediction about such a promising technology and science be so wrong?

DOBIGNY, Laure

Catholic University of Lille

Co-author: Laurence RAINEAU

WHAT "EFFICIENCY" ARE WE TALKING ABOUT? IMAGINARIES OF SMART, EFFICIENT AND AIRTIGHT BUILDINGS

In the face of climate change and the need to reduce energy consumption, new technologies of building construction and renovation are being implemented. There is a range of building approaches, from "smart" to "efficient", depending upon how automated the building is (number and kind of sensors and data collected). Nevertheless, the air tightness of buildings is systematically improved in order to increase energy efficiency. The air circulation is controlled and directed by an automatic ventilation system. However, the energy efficiency of the building depends upon the buildings' users to interfere as little as possible with it (e.g. by opening a window).

This presentation aims to question the imaginaries around these "new" technologies of construction, from the perspective of the designers and engineers, as well as the users. We look at the imaginaries of technology, energy transition and human-nature relationship. How are the roles of technologies and users represented? What type of indoor environment is created by airtight buildings? And what relationships to nature and to the world are promoted by these buildings?

Airtight buildings were already envisioned in the middle of the 18th century. The promoters of these buildings - the proponents of closed spaces and constant temperature - were opposed to the proponents who favored drafts and temperature contrasts. This debate continued throughout the twentieth century and shows that traditional building was based on other priorities, other criteria of efficiency (healthy air, durability of the building, etc.). Indeed, the current air tightness of buildings raises social, environmental, ethical and health issues - such as air quality (indoor pollution due to building materials, fungi, etc.). We will then discuss the imaginaries of efficiency, and question the pursuit of energy efficiency and its limits.

DOELAND, Lisa

PhD student

LETTING WASTE GET STUCK IN OUR THROATS: FROM A CIRCULAR TO A DIGESTIVE LOGIC

As the dominant ideology of Zero-Waste-Circular-Economy (ZWCE) would have it, there will be no such thing as waste in the future. ZWCE relies on technology to "design out waste" and frames it as an object of "manageable sustainability" (Valenzuela & Bohm, 2017) that can be transformed, exchanged and circulated again and again. However, this idealized techno-control driven discourse on the becoming-resource of waste cannot account for the ways in which these remainders defy a circular logic. Waste gets stuck, it accumulates and forces us to ponder its (in)digestibility. Although ZWCE is concerned with the digestive – e.g. (global) metabolism of flows of materials and the anaerobic digestion of waste – it takes metabolism to be stable, closed and quantifiable. However, a genuine digestive logic requires the re-evaluation of metabolism as an "in-between concept" (Landecker, 2013), concerning the interplay between individuation and environment, that is concerned with life. Drawing on philosopher Jacques Derrida's thought on (bio)degradation and things living on (after we are done with them), I will argue for a "revised metabolic imagery" (Gabrys, 2013) that steers clear of closing the loop. Finally, I will argue that this shift from a circular to a digestive logic requires an ethic of "eating [and execrating] well" (Derrida, 1991), that concerns learning to live with (unwelcome) remainders. What do we eat and what do we give to eat, both metaphorically and literally? What lives on – and how? Instead of trying to smooth things over, we should let waste get stuck in our throats.

DOMENECH, Theodora

CRISES Université Paul Valery Montpellier 3

"LIKE": AESTHETIC EXPERIENCE IN A DIGITAL ENVIRONMENT

This research analyses the process of judgment at work when someone evaluates a piece of contemporary art. I will focus on the link between spontaneous appreciation - "I like" - by an individual subject, and the system of norms shared by a community. However, since we live in a "digital environment", the use of new technologies has a strong influence on people's taste. I will therefore examine the effect of digital tools on contemporary processes of evaluation.

The starting point of this research is the observation that new technologies amplify normative judgments as well as discriminatory practices. Discrimination is widespread in contemporary art institutions, where European and American male artists are widely favored. The main causes of discrimination in the art world are inherent to the way art professionals form their taste (Bourdieu, 1979). Emanating from their confrontation with an established body of work, this matrix formation is expressed unconsciously in the exercise of aesthetic judgment (Nochlin, 1998). If this corpus is predominantly male and American/European, it generates bias in judgment. It will lead to a spontaneous preference for artists of the same gender or ethnocultural origin.

In order to change the paradigm of aesthetic judgment, it will be necessary to rely on a more inclusive canon and the development of other perspectives (Pollock, 1999). In this context, digital tools play a paradoxical role: the Internet, for example, could considerably increase the visibility of non-European/American and women artists (Cardon, 2010). On the contrary, through algorithms, the system of automatic recommendation leads the internet user to repeat stereotyped behaviors (Pariser, 2011; Cassin, 2006). Despite this negative impact, are the digital tools able to deconstruct the andro- and ethno-centered canon of contemporary art and replace it with a more multicultural, diverse and inclusive one?

DOORN, Neelke

Delft University of Technology

ON THE USE OF MODELLING TECHNIQUES IN PHILOSOPHY OF TECHNOLOGY: AN EXPLORATION

The relation between the empirical sciences and philosophy of technology has received ample attention in the past decades. Since the 1980s, empirical insights from Science and Technology Studies inform many of the philosophical and ethical analyses of specific technologies and their use. Also in their volume on the empirical turn in philosophy of technology, Kroes and Meijers argue that philosophers of technology should "base their philosophical analysis concerning technology on reliable and empirically adequate descriptions of technology (and its effects)" (Kroes & Meijers, 2000: p. xxiv).

While many conceptual and ethical analyses are now informed by qualitative insights from the social sciences, the use of other research methods in philosophy is still limited. This is a missed opportunity as there is a potential to enrich philosophical analyses also with other methods. For example, little work in the philosophy of technology makes explicit use of modelling techniques even though there is an analogy between the formalization necessary for modelling and the formalization and conceptualization done within philosophy. Also the use of insights from computational social sciences could shed new light on the interaction of humans with technology.

In this presentation, I will explore how models can be used in philosophical analyses of practical phenomena by presenting different modelling purposes. The presentation is informed by an ongoing philosophical research project on 'responsibility arrangements in resilience policy for climate adaptation', in which so-called agent-based modelling tools are used to enrich the philosophical analysis. Agent-based models simulate the dynamic interactions between different actors, thereby allowing the study of emergent group behavior.

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DORIDOT, Fernand

ICAM of Lille

NANOETHICS AT THE CROSSROADS OF THE MANY CHALLENGES OF ETHICS OF TECHNOLOGY

Since its early development, nanotechnology has been considered by some philosophers and thinkers as much as a quite problematic society project as a common scientific and technological project. This description has endowed "nanoethics" with an intrinsic duality, between ethics of a set of technologies to be upstream assessed due to their possibly problematic uses and applications, and ethics of an underlying social and political project to be made explicit and criticized. Upon this ambiguity have progressively emerged other kinds of questions (questions of objects, of methods, of fields, of nature, etc.) making of nanoethics a quite controversial discipline. One will try to show how the possible responses to all the questions above can orientate the practice of ethics of nanotechnology towards very different directions, and one will ask if ethics of nanotechnology is not as such a very good revelator for all the challenges inherent in any ethics of technology.

DOROBANTU, Marius

VU University Amsterdam

ARE HUMANS HACKABLE? ARTIFICIAL INTELLIGENCE, DEMONIC INTELLIGENCE, AND OUR FREE WILL

There is a striking similarity, in terms of both strategy and purpose, between some modern AI algorithms and the way demonic intelligence is described in Christian tradition. Social media algorithms constantly work to predict our behaviour and present us with just the right 'temptations' that might trigger our reaction. AI gathers enormous data from our external behaviour and builds actual voodoo-like models of who we are and what we care about, potentially leading to a point when, in Yuval Harari's words, algorithms "know us better than we know ourselves."

In Christian tradition, the devil is seen as doing a similar job (e.g., Athanasius, Life of Anthony). Without access to one's internal thoughts or 'soul', the devil can only infer our triggers based on our external behaviour (actions, gaze etc.) and physiologic data (heart rate, certain neurons firing etc.). The devil is thus, to some extent, our imagined upper limit of what AI algorithms could ever be capable of.

In spite of the devil's informational advantage over us, Christian belief affirms that we are ultimately free and still able to choose our actions. In contrast, current concerns that AI algorithms could easily manipulate us and rob us of our freedom are built on the presupposition that we are hackable.

Is Christian anthropology naïve in ascribing such a high degree of agency to humans? Or should we see the failure of demonic intelligence to completely break the human as a reason to be less worried about AI's ability to manipulate us?

DORRESTIJN, Steven

Saxion University of Applied Science, Research group Ethics & Technology, HBS Deventer

Co-author: Wouter EGGINK

MAKING A PRACTICAL TURN: PHILOSOPHICAL DESIGN TOOLS IN AN ETHICAL PARALLEL TRACK FOR INNOVATIONS

Our research aims to contribute to the mutual and constructive collaboration between philosophy of technology and design research: a practical turn in the philosophy of technology. This means a variation and extension to the 'empirical turn' in the philosophy of technology. After the turn from abstract thinking about the essence of technology toward research based on empirical case studies about concrete technologies, we turn further to make philosophy of technology 'practical' by collaboration with design. This practical turn follows up on the R&D role for philosophers once proposed by Don Ihde and the notion of ethical accompaniment (cf. Gilbert Hottois) as employed by Peter-Paul Verbeek. A central research question for making such a practical turn is what kind of work plan is needed for the implementation of a collaboration between philosophy and design?

As one way of implementing the philosophy-design collaboration we propose an "ethical parallel track for innovations" with a number of interventions addressing specific ethical questions in different stages of an innovation process.

- At start up: broadening of the problem analysis to address goals and values from a societal perspective (ethical readiness check, impact forecasting, and stakeholder dialogue).
- During development: striving for technical design adjustment for optimization by design of usability, adoption, and societal impacts (design for impact, ethics pilots).
- After implementation: assessment and evaluation of longer term effects and taking lessons for future innovations (impact assessment, corporate strategy adjustment).

In the sense of our practical turn we will illustrate (rather than fully validate) this parallel track with a practical example from a one-week Industrial Design Workshop at the University of Antwerp where 18 students executed a conceptual design project for the improvement of public space.

DUBOIS, Michel J.F.

UniLaSalle

DOMESTICATION IMAGINARIES: BETWEEN HUBRIS AND ALLIANCE WITH NATURE

The progressive domestication of the living and inanimate environment is a relatively unrecognized reality; an ancient movement of technical conquest in acceleration according to this transition called the Anthropocene. Considerable differences may occur between facts and imaginaries which can be described according to two opposing imaginaries.

Imaginary of human omnipotence, predominantly male, is a stance of denial vis-à-vis the damage inflicted on the environment: excessive collapse of biodiversity, global warming, difficulty in maintaining the level of agricultural production. It projects a hypertechnological "bright future", leading to a new human - posthuman or transhuman - for whom technique becomes the auxiliary allowing the exploration of new spaces and the general prosthetic complement correcting failures and accidents.

The imaginary of a repaired nature, ecofeminist, in which the "wild" world retains a status and by which the notion of care takes precedence at all costs over the desire for power, economic growth and technical innovation. The living to be defended are priceless and "degrowth", sometimes synonymous with "de-development", becomes the watchword.

On the other hand, the imagination of a domestication of the biosphere, in alliance with its regulations, a domestication of evolution, is discreet and can only be guessed by the revulsion it provokes among thinkers of "deep ecology" . Yet ecological trends are pushing to domesticate renewable flows, sometimes confiscating them from other species. It is this underlying imagination that we will study.

EARLE, Josh

Virginia Tech

THERE IS NO SUCH THING AS MEDIATION: AGENTIAL REALISM VS. POSTPHENOMENOLOGY

Mediation -- the process of an artifact altering a phenomenon through its intervention between the object and observer -- is a central concept in postphenomenology, and philosophy of technology more broadly. In this paper I will argue that on a metaphysical level, there is no such thing as mediation. Instead, through the lens of Agential Realism (Barad, 2007), I argue that technologies cannot mediate because in arrangements wherein they are necessary to produce an "agential cut" or a particular phenomenon (such as a microscope making visible a cell, a telescope making visible a star, or a particle accelerator making visible an electron), they become a fundamentally entangled part of the phenomenon, inseparable from the phenomenon itself. Mediation implies that a phenomenon is changed as it passes through the technology. It further implies that there is a "more pure" object "out there" (cell, star, or electron) on the other side of the phenomenon the mediator enables. I argue against such separation. Instead, I argue that the phenomena of the cell, star, or electron can only exist with the technologies (microscope, telescope, accelerator) entangled within the phenomena. My position carries with it several ramifications. First, the agency of technologies entangled within phenomena become more distributed and complicated. Second, the ethical obligations to the technologies we use becomes both more obvious and more consequential. This may be a less obvious issue with telescopes and microscopes, but jump to the front of our minds when we consider spirometers (Braun, 2007), pulse oximeters, or police body cameras. By leaving behind the notion of mediation, technologies themselves, as well as the networks of actant that hold them up, become active participants in the production of violence or justice, and new avenues of ethical action become both apparent and necessary.

EGGERT, Linda

Harvard University

ARTIFICIAL INTELLIGENCE, MORAL CONFLICTS, AND MORAL IMAGINATION

This paper's mission is to give shape to the common, but distinctly hand-wavy, notion that something morally significant would be lost in delegating certain judgements to AI. My aim is to identify what, if anything, of moral significance would be compromised in delegating distinctly moral decision-making to algorithms.

The main thesis of this paper is that putting AI in charge of situations that might pose moral conflicts prevents us from responding appropriately to the inevitability of certain moral wrongs. My main premise is that, in cases in which weighty moral requirements are overridden by others, the requirements not acted upon don't simply disappear but retain their moral force - for example, reemerging in the form of remedial duties, or persisting as a distinct source of regret. Recognising this requires what we might describe as moral imagination. Insofar as this is what AI lacks, I propose that, in delegating decisions to AI in these cases, we would effectively deny the persistence of overridden moral duties.

This matters for at least three reasons: first, in the cases of concern, conflicting duties correspond with fundamental rights; second, even tragic choices may generate remedial obligations; third, focusing on moral imagination throws new light on what we should hope to achieve in demanding that AI researchers and engineers engage more deeply with the ethical implications of their work.

The discussion proceeds as follows. The first half of the paper outlines the proposed view: Section II argues that weighty deontological requirements persist in moral conflicts, even if they are overridden by consequentialist demands. Section III makes the case that what I call 'autonomised' agency is unable to accommodate certain moral duties. The second half of the paper discusses implications and objections: Section IV examines implications for victims of moral wrongs, remedial justice, and the role of moral imagination in debates about AI ethics. Section V examines what kind of duty we might have to limit certain decisions to human moral agents on account of their possession of moral imagination. Section VI discusses the possibility that eliminating the 'human factor' might actually be desirable in the context of tragic choices, and responds to scepticism about the importance of moral imagination. Section VII concludes.

ERDEN, Yasemin J.

University of Twente

ETHICS IN MIND: NEUROTECHNOLOGIES AND HUMAN ENHANCEMENT

Neurotechnologies, such as cognitive prostheses, offer scope for many therapeutic interventions, as well as some potential for enhancement. While the implications of such technologies may be vast, ethical guidance regarding enhancement potential is rather limited. This presentation will consider these issues by focussing on one specific example of a hippocampal cognitive prosthesis that is being developed with DARPA funding. We will consider how this kind of technology can impact on questions of human identity, ethics, and societal values. In addition, we will explore how ethics guidelines developed by the SIENNA project can be used to examine and evaluate issues of risk and benefit, as well as to assess the impact of such technologies on values such as well-being, autonomy, informed consent, equality, justice, and (moral and social) responsibility.

ERIKSEN, Cecilie

Utrecht University

TECHNOLOGY AS A MAIN AGENT OF MORAL REVOLUTIONS? AI AND THE DANISH LEGAL SYSTEM

Technology has been shown to be a significant factor in the creation of some moral changes. Can it, however, also be the main dynamic behind moral revolutions? Recent research into moral revolutions has not answered this question, as it has either given the main role to factors such as moral pioneers (Baker 2019), individual psychology (Hunt 2008) and honour codes (Appiah 2010) or it has opened a space for technology to possibly play such a role but left it un-investigated if it ever has done so (Eriksen 2020). This presentation will investigate whether technology can be the main dynamic in moral revolutions, where a moral revolution is understood to be a radical moral change in practices, societies or cultures. The case it will investigate is whether the use of digital technologies in the Danish public administration, especially AIs in case management, is radically changing some of the fundamental moral values of the Danish welfare state.

FAGOT, Christophe

Intactile DESIGN

FIRST CASE STUDY: STEMIC, A SEMANTIC TOOL TO HANDLE DATA, CONSTRUCT THINKING AND OPEN IMAGINARIES

Stemic is both a datavisualization's tool and a concept map creation - and not a mindmapping tool. By using Stemic, you have the possibility to draw maps of situations in order to visualize their complexity. With Stemic the user is at the heart of the tool. This position is very different from a user-centered design where technical materiality takes a back seat. By putting the user at the heart of the tool, Stemic succeeds to avoid the enslavement of the human being by the technique - and vice-versa. With Stemic, it is indeed the user, in all his/her singularity, who designs his/her graph and hence the meaning he/she gives to the knowledge he/she constructs. Algorithms never determine behind the back of the user how to organise and display data. From design to end product, Stemic is truly pluralistic and allows different process of meaning construction.

Once the user has elaborated a Stemic graph from his own concepts, words and ways of thinking, it will be possible to use this particular graph and its concepts to mine data and search relevant information on the web. The information collected by this way will be aligned on the user's woldview and his/her imagination such as it is projected on the graph, through semantic computing. Stemic is thus a pluralistic technology that implements a human-machine companionship, at the very opposite of a disposessing and fascinating automatisation.

The aims of this subpanel are:

1. To explain how Stemic and the user work together

2. To show how the user as well as the technical materiality are situated at the heart of the tool, from design to final product

3. To insist on the ambition of the tool to open up users imaginaries and to lead them to discover new potentials, through a human-machine companionship.

FAVIER-BARON, Eugène

Université Libre de Bruxelles / UGA Grenoble

Co-authors: Vincent ORTIZ, Simon WOILLET

IS GOVERNMENT AS A PLATFORM A NEO-LIBERAL CONCEPT?

For many critical thinkers, "government as a platform" seems to be the epitome of a "neoliberal" concept - concepts like "surveillance state" or "surveillance capitalism" are often referred as such. However, a series of various phenomena suggest that there is more to the platform state than a digital mimicry of the modern state. Facebook's "libra" project, France's "Health Data Hub", Nevada's recent decision to transfer sovereign prerogatives to private digital companies, suggest a paradigm shift which neoliberal thinkers are unable to fully encapsulate. Extensive academic literature has defined neoliberalism as a school of thought atempting to reconcile free market economics with a state which would impulse concurrential dynamics and competitive behaviours. The new political economy we are currently facing seems to rearticulate the public and private sphere polarity in unprecedented ways. A new political ontology, a new conception of the nature and structure of social identities and institutions has thus emerged that calls for a critical interpretation of the full range of current conceptual mutations that are at stake. For instance, the modern qualification of political subjects (subjects of law, citizens...) has undertaken a radical reformulation in the form of the emerging "user-citizen" (Alauzen, Jaeger), implying the idea of a State reduced in its essence to a mere "counter" were private entities come to reclaim data related to public services (healthcare for instance), administrative services and informations. The entire structure of the modern rule of law seems to dissolve and pave the way for a new normative architecture characterized by the privatisation of regulations (algorithmic targeting, "nudging", "compliance", corporate social responsability...).This paper aims to sketch the more salient aspects of this emerging economical rationality. Following the ideological and technological genesis of this paradigm, we will meet both the neo-liberal and cybernetic discourses, and we will attempt to discuss its concrete implications on the institutional and anthropological level

FEENBERG, Andrew

Simon Fraser

TECHNOLOGY AND IDEOLOGY IN THE THOUGHT OF HERBERT MARCUSE

Marcuse is famous for having declared that science and technology are ideology. In this paper I will explain his various arguments for this thesis, which he himself call “outrageous.” The most outrageous of his claims, the notion of a successor science incorporating aesthetics, is impossible to defend, some of his arguments converge with contemporary technology studies and philosophy of technology. Marcuse’s critique of Max Weber’s concept of rationalization anticipates a constructivist understanding of the relation of technology and society. I will show how this approach relates to technoscience, specifically climate science.

FERNÁNDEZ-JIMENO, Natalia

University of Oviedo

FEMINIST IMAGINARIES OF TECHNOLOGY

Technology has been a source of concern for feminist thought, from Academia to the social movement. Feminism has drawn attention to a diversity of problems related to technology, such as the scarcity of women in science and technology, the barriers and mechanisms of exclusion that women face in these fields, and the role of gender in the scientific construction of knowledge and technological development. From the 1990s, debates on the relationship between gender and technology began to shift from an emphasis on "the question of women in technology" to "the question of technology in feminism" (Harding 1986, Faulkner 2001). By the end of the 20th Century, discussions in academic and social movement environments often oscillated between technopesimistic and technoptimistic approaches. While the former reduced women to victims of an inherently patriarchal technology, the latter tended to think of technology as a tool that would bring women's emancipation. Since then, Feminist Technoscience Studies has brought a diverse array of trends, such as technofeminism, new feminist materialism, feminist posthumanities or xenofeminism, among others.

This paper critically reviews recent feminist imaginaries of technology. It aims to clarify their hybridizations and demarcations and reflect on these recent theories' importance to think about contemporary technologies. With this purpose in mind, this article begins with a literature review of Feminist Technoscience Studies. It proceeds with analysing the connections and disruptions between feminist theory and feminism as a social movement. To do so, it takes discourses from the Spanish feminist movement about reproductive technologies as examples.

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FIANT, Océane

Université de Nantes

THE DEPLOYMENT OF ARTIFICIAL INTELLIGENCE IN MEDICINE: A PERSPECTIVE BASED ON THE STUDY OF THE USE OF A DECISION TREE FOR THE DIAGNOSIS OF PULMONARY EMBOLISMS IN EMERGENCY MEDICINE

Most medical devices embedding artificial intelligences designed today are intended to supplant rather than support physicians in certain tasks. As a result, doctors rarely have a voice in their design. However, past failures of technologies designed for physicians (e.g., expert systems) indicate that the latter will not adopt or use technologies that do not take into account their actual practices. This presentation intends to draw the conditions for the effective deployment of artificial intelligence in medicine from the case study of an algorithm, a diagnostic decision tree for pulmonary embolisms, used on a daily basis by emergency physicians. I will show that the resolution of the issues raised by artificial intelligence in medicine today (explainability, generalizability, etc.) requires the question of the integration of these technologies in particular contexts of use to be resolved upstream.

FIELDS, Chris

Retired

THE THIRD WAR: ARCHITECTURES FOR INTELLIGENCE

This AI War was about imagining machines that understood meaning — the meanings of sentences, of actions, of thoughts, of computations. Meaning (and hence consciousness) was one of the main battlegrounds in the AI Wars. Philosophers attacked the AI project by pointing out that while humans and human lives are rife with meaning (reading and understanding this meaningful sentence, for example), computers seem to be without any meaning whatsoever. Computer programs and their data structures seemingly mean nothing at all to the computers running them (though, of course, they mean something to us, their builders). The importance of this difference between humans and machines cannot be overstated. (1) Humans but not computers have meaningful internal processes (neural processes in humans, electronic processes in computers). (2) Humans but not computers are intelligent (as of this writing). So, (3), perhaps (1) explains (2) —computers are boxes of meaningless electronics, whereas humans are soft squishy bags of meaningful wetware. This presentation explores this idea and the associated philosophical attacks on AI.

FILINICH OROZCO, Renzo

Valparaiso University

QATIPANA: TOWARDS A FUTURE OF LATIN AMERICAN COSMOTECHNICS

This presentation revolves around the concepts and processes of Becoming and Individuation through a hybrid ecosystem whose architecture is called Qatipana (a Quechua word that denotes the flow of information processing systems), although it cannot be considered as a systems theory, it has the utility of being able to explain some empirical observations that are presented here; and where a functional model based on the articulation of an information processing system based on the approaches of the philosopher Gilbert Simondon is evidenced; this research aims to observe a sensorimotor cycle performed by the cognitive system of an Artificial Intelligence agent. To establish this model of biological inspiration, we used the concepts of information and modulation in Gilbert Simondon and information in cybernetics of Norbert Wiener and Stafford Beer. These resources force us to ask ourselves the following question: How does mono-technology and computerization of cultural techniques influence the very nature of knowing the affect of being with others (people, things, animals)? To answer this question, an interdisciplinary study (arts, sciences, information technologies) is offered on the effect of this symbiosis and how it can be seen in the full use of knowledge about the fundamentals of living and non-living matter. In conclusion, the implications and limitations of this model and the research that is being carried out to present its utility and probability as a techno-diversified model of the algorithmic cognitive system are part of the issues of communication and affect in the decisions that this cybernetic system provides.

FINNEGAN, Colum

University College Cork

MINDSHAPING AND ICT: THE WORLD MADE NEW

Cognitive science has begun to embrace a radical new conception of mind– and self–formation. Known as mindshaping, this theory proposes that the primary function of many features of human social life is to regulate and constrain cognition and behaviour to fit culturally developed models. The regulation of self and other to fit such models is what enables the fluid social interaction of complex heterogenous agents, i.e. society, to function.

In the age of individual selves, this externalist approach to human capabilities re-emphasises the role of social. This paper will begin a conversation about mindshaping mechanisms in the "new social"–the online sphere. If borne out, the mindshaping hypothesis has some worrying implications for the rapid global penetration of ICT. Communication technologies are mindshaping mechanisms, when the technologies change so too do the minds. This paper will show how the mindshaping paradigm allows us to reimagine human-technology interactions. Issues emerge such as:

- The use the advertising industry makes of mindshaping mechanisms like automatic conformity or imitation to further commercial ends.
- The fine-grained and opaque control digital platforms offer to their clients for the modification and targeting of content to maximise engagement and guide discourse.
- The dangers of authoritarian or neo-feudal governments entrenching their power through the effective use of mindshaping mechanisms, particularly through the use of techniques developed by the advertising industry.
- The downsides that can emerge from homogenising global cultural spaces, and the threat this poses to future human progress.

Nevertheless, despite these issues, the picture is not entirely dark. Indeed, the effective coordination that mindshaping mechanisms enable will need to be harnessed if humanity is to confront its most pressing challenge: anthropogenic climate change. The future will belong to those who can successfully wield such mechanisms, for good or ill.

FIRENZE, Paul

Wentworth Institute of Technology

REIMAGINING CAPITAL IN THE AGE OF INFORMATION TECHNOLOGIES

Information technologies are calling forth a reimagining of the concept of capital. For example, McKenzie Wark (2019) asks if new information technologies have created a new relationship of production, fundamentally different from the relationship described in traditional economic understandings of capital and labor. A new exploiting class, which Wark calls the *vectoralists*, controls, not the means of production (as capitalists do), but the vectors along which information products move. The new laboring (exploited) class, the *hackers*, includes not only traditional information workers (writers, programmers), but also information technology "users," whose activities can now be captured in the vectors and turned into a distinctive property form: the information commodity (e.g., data, intellectual property).

This paper will argue that Wark's "new" relationship of production is a difference in degree, rather than kind. That is, it can still be imagined as a relationship between capital and labor, if capital is conceived broadly (and, as I will argue, properly) as *the produced means of production*—a process wherein value is iteratively created from the relationship between stability and innovation. This understanding of capital is accounted for in the institutionalist economic tradition, dating back to Thorstein Veblen (1908), who regarded technologies not only as material artifacts, but also as the immaterial "ways and means" of a community's social practices which provision human life. Capital is the means of producing value via these "technological" practices. The new technological conditions of production Wark identifies enable vectoralists (like more traditional capitalists) to engross forms of value which have heretofore been uncapitalizable due to their existence as the commonly held, immaterial ways and means of a community. "Uberisation," the "gig economy," and other distributed labor networks (crowdsourcing) are salient examples of this new type of engrossment.

FLIPO, Fabrice

Institut Mines-Télécom Business School

A SARTRIAN VIEW ON ANTHROPOCENE'S POSSIBLES

In the face of the ecological emergency, one argument often comes up when faced with a political proposal that does not seem to be equal to the necessary changes: "we don't have time". Democracy itself seems too slow. How can we go faster? Given the inadequacy of "small gestures", can we "make a revolution", "change the system", and change everything by vote? This is what Andreas Malm proposed during the Yellow Vests crisis: to make it rain electric cars to solve the social and ecological crisis .

In the Critique of Dialectical Reason (1960), Sartre shows that the world and its devices are regulated in two ways: either in the form of 'series' of standardised and repetitive situations (e.g. trains that run on time or rush hours in the metro), or in the form of the 'group', notably the melting group, a situation in which rules change in the course of an intense activity of concrete re-regulation, ranging from a small melting group to a revolution, on a grand scale. This re-regulatory activity involves both normative possibilities (what was held to is given up to be held to something else, interests are re-evaluated etc.) and material possibilities (objects and infrastructures are modified or change their destination). For example, in the situation of the French Revolution, kitchen knives became weapons, citizens became soldiers or spokesmen etc.

But how do we trigger the change? Sartre does not indicate this. He does, however, indicate the difficulty: it lies in what he called « recurrence ». An individual may be convinced of the urgency, but he or she is caught up in the constraining reality of the series. And so are his immediate neighbours. How can we get out of this situation of serial dependence, which is similar to what the philosophy of technology calls a 'lock-in'?

Let us note then that many goods are only useful if they are widely used. You don't build roads for one car, you don't build cycle paths for one bike. The more cars are used, the more roads there are and the more useful the car is - but the more the lock-in of car dependency sets in. This is what economics calls a 'network effect'. This kind of economy evolves in the following way: a long and unproductive effort suddenly turns into a generalized one. Thus, the few heroic farmers who defend organic farming gradually lower the "entry cost" of organic farming, by changing the situation, the perception of consumers, the attitude of banks, institutions, financiers, etc. Little by little, it becomes more useful (easier, less stigmatising, more rewarding, etc.) to farm organically, and thus we get out of the lock-in. Companies themselves use this kind of technique to 'innovate', i.e. to weave networks that they control - thus Apple and its 'fan-base', or the use of children or distinction ('think different') or even identity ('come as you are') as a lever for purchasing or, more precisely, for the 'consumer experience' as marketers say.

Getting out of an undesired trajectory is therefore not only a matter of "revolution" or of individual commitments: both are equally necessary as two moments of action, in time and space. In concrete terms, no state power could decree a switch to electric cars, and no isolated group of activists could achieve this either.

FOX, Alice

Virginiat Tech, Department of Science, Technology and Society

BEYOND INCLUSION: CRIPBORG FUTURES IN CYBERPUNK 2077

In the social imagination, cyborgs frequently conjure up visions of super-humans entangled with cutting-edge innovations capable of surpassing the limits of the human body through technology. Images of a cyborg modernly invoke images of Tony Stark (Iron Man) or Bucky (The Winter Soldier) or video games like Detroit: Become Human or Deus Ex. However, the focus on futuristic high-tech hybrids often overlooks the existence and experiences of the cyborgs already living among us: differently abled people. Differently abled people are frequently under-or-un-represented within popular culture and media. And when they are represented, the representation is rife with tropes ranging from 'the super crip' to 'the innocent fool' [1] or focused on 'fixing' disabled people using technology [2] [3]. Video games are no exception to these dominant images that permeate popular media (Gray, 2020), but video games are uniquely positioned as ludic, ergodic technologies to challenge, co-create, and reimagine possibilities of the future and realities of the present [4] [5]. This paper closely investigates the conceptualization of cyborgs within the techno-dystopian video game Cyberpunk 2077. Ultimately arguing that while the game designers incorporated many challenges faced by lived-experience cyborgs such as healthcare cost and accessibility, maintenance, and interfacing, a few changes are necessary to elevate the game from passive inclusion of differently abled people to actively pushing players to consider and advocate for cripborg futures [6].

FRIGO, Giovanni

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Co-authors: Christine MILCHRAM, Rafaela HILLERBRAND

DESIGNING FOR CARE

In the context of technological design, the notion of “value change” or “changing values” can have different meanings. In a constructive dialogue with other attempts to explore this issue philosophically, we propose that a transformation regarding values can take place also within the mentality and practice of the actors in charge of designing technological artefacts and systems. To explain this peculiar meaning of value change, we suggest “Designing for Care” (D4C), an approach to design informed by Care Ethics. D4C rests on distinctive theoretical foundations, recursive “caring phases” and a set of “caring values”. Adopting the D4C framework through the different phases of the broader project development and the more specific steps of the design process would improve the ability of project managers, designers and engineers to capture and assess stakeholder values, critically reflect on and evaluate their own values, and then judge which values should be prioritized and chosen. Although D4C may be adaptable to different design contexts, we concentrate on how it may affect the project development as well as the design process of a small-scale energy system. To illustrate that, we discuss the case of a recent community battery project in the Netherlands. Embracing this alternative way of conceiving design practices can have multiple positive effects such as transforming the mentality and practice of designing and building artefacts and systems in the direction of caring, achieving better communication between practitioners and stakeholders, realizing more inclusive participation within the project and design processes, and accomplish more just decision-making.

FRITZSCHE, Albrecht

Ulm University/ FAU Erlangen-Nürnberg

DIGITAL SOVEREIGNTY AND RATIONAL ACTION: LOOKING BEHIND THE TERRITORIAL IMAGERY OF CYBERSPACE

Various streams of research have lately started to talk about sovereignty in the context of the digital transformation and data-driven operations. While originally meant to establish a form of national territoriality in the digital space, several reviews find that the term is now used more diversely to address different issues of autonomy, emancipation, privacy, etc. in cyberspace. From a philosophical point of view, all these issues seem to be caused by a increasing uncertainty about the notion of action in the presence of digital technology. The call for sovereignty seems to go along with a need to reconstruct patterns of cause and effect that allow for the attribution of authorship, responsibility and control to specific actors. To some extent, such attributions have always been arbitrary, as root causes and further consequences of actions were never fully addressed. However, social conventions and physical representations allowed us to cope with this problem, which is not the case any more in the current situation.

In search for possibilities to cope with the problem, this paper turns to Max Weber's account of rational action in capitalist societies and its foundations in religious asceticism. It argues that this form of reduction (i.e. exclusion of indeterminacy) as a precondition for addressing action is also relevant in the situation we are facing today. Territorial approaches to digital sovereignty show one way how this reduction can proceed, but there are also other ones which may also be applicable in the context of digital technology. However, they may force us to come up with a new imagery of the actor in digital space, the resources needed and the freedom to decide.

GAILLARD, Maxence

Catholic University of Louvain

TECHNOLOGICAL INNOVATION AND ETHICAL INTERVENTION, THE CASE OF ORGANOID TECHNOLOGY

Following stem-cell research, the emergence of so-called 'organoid research' in the 2010's resulted in an active ethical debate and by various committees being asked to rule on these supposed new entities. Organoids are self-organized cell cultures that develop into a small biological system similar to a natural organ. For instance, a 'mini-gut' (or intestinal organoid) is developed from gut stem cells into identifiable bodies of several millimeters that share some structural and functional properties of intestines. Organoid researchers like to call it a new biotechnology.

As is often the case, S&T innovations stimulate ethical discussion about the attitude that one should adopt regarding these innovations, and eventually new procedures might be enforced to control, guide, or limit their development and use. However, it is not obvious that every innovation requires new ethical rules, and even that it deserves specific ethical consideration.

One can argue that existing rules concerning human stem cells or research with embryos are sufficient to cover ethical issues raised by organoids. But if one thinks that organoids are radically new objects, ontologically different from simple stem cells aggregates or embryos, then one is more likely to claim that a new ethical framework is required. Different options are on the table, as there are different ways of articulating the degree of novelty of biotechnological innovation and the need for subsequent ethical and legal innovation. Such options include:

- There is something radically new in organoids; as a consequence, we need a specific ethical framework.
- There is something radically new in organoids, but existing tools of ethics and legislation are sufficient.
- There is nothing radically new with organoids; as a consequence, there is no need for supplementary legislation.
- etc.

This paper wants to unfold the logical structure of the argument by exploring these different options.

GAILLARD, Clément

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LIVING WITH THE SUN, OR THE SYMBOLISM OF PASSIVE SOLAR TECHNIQUES IN ARCHITECTURE

Following restrictions of the WWII and the growing fossil energy shortage fear, many American engineers looked for alternative sources of renewable energy. Among others, direct use of the sun's energy concentrated many research, particularly for domestic heating purpose. During the second half of the 20th century – and particularly after the 1973 oil crisis – passive solar techniques were developed in the U.S.A. and Europe in order to heat and cool houses with the sun's energy. Passive solar heating or cooling systems can be defined as "one in which the thermal energy flows by natural means" (Balcomb, 1977). Although those techniques were only used in few houses, they fascinated many architects, engineers and inventors. Passive solar houses seemed to work with the sun and following the natural rhythms therefore creating a new climate-conscious form of life. The inhabitants of those houses were invited to conferences and interviewed. Paul Davis, who lived in a passive solar house in New Mexico, agues in one of those conferences that his house "is part of a living system which makes our world a microcosmos again and reestablishes our bonds with the dynamics of our natural surroundings" (Davis, 1977). Passive solar houses inhabitants seemed to have developed a sensitivity to natural rhythms and periodic climatic phenomena. By studying those discourses on passive solar houses and techniques, we want to explain the symbolic dimension of those techniques and how they were associated to a more "natural" form of life.

GAMEZ, Patrick

Missouri University of Science and Technology

Co-author: Ziyuan MENG

ENFRAMING OR ANIMATING CODE? REFLECTIONS ON CYBERSECURITY

It can be a struggle for philosophers and engineers to engage with each other in good faith and in terms mutually intelligible to each other. As an engineer and a philosopher, we have at the very least a good deal of anecdotal evidence for this claim.

As our aim is to bridge a divide between engineer and philosophers in practice, we try to demonstrate that changes in philosophical perspective can make meaningful differences to technical practice. So we look to the issue of cybersecurity. More specifically, we will look at the relatively common hacking practice of SQL injections, to:

(a) argue that it is genuinely helpful from a practical and technical standpoint to view these practices from an ontological point of view by:

(b) articulating the problematic ontological assumptions that foster these sorts of vulnerabilities. Drawing on work in the classical philosophy of technology, we suggest that computer scientists engage with the infosphere instrumentally, "enframing" and reducing the agency of digital objects to inert, fungible resources. In particular, we argue that viewing the components of, e.g., an app reductively, as fully modular, instrumental, and inert, can lead to poor design choices, and a different ontological point of view may be called for;

c) providing an interpretation of new materialism and the "ontological turn" in anthropology and philosophy as an implicit response to the concerns of the classical philosophy of technology, and a modest defence of them;

d) arguing that an imaginative shift to the sort of agency-rich, quasi-animistic ontologies described in (c) could be useful for avoiding the sorts of cyber-vulnerabilities propagated in much coding and revealed by SQL injections.

GARDENIER, Anne Marte

Eindhoven University of Technology

IMPROVING SOCIOTECHNICAL CYBERSECURITY THROUGH TECHNOLOGICAL CITIZENSHIP

Citizens are vulnerable to various harmful consequences of the rapidly digitalizing society. This paper focuses on threats in the realm of cybersecurity and aims to clarify which different types of technological citizens are involved in this sociotechnical realm. Technological citizenship (Frankenveld, 1992) can be defined as the accumulation of rights and obligations which enable citizens to profit from the merits of technology and to be protected from the risks technology might induce. Technological citizenship questions who has the authority to make decisions about implementing technology and by what right, and aims to emancipate the ordinary citizen in relation to the expert. While citizens have the right to information and participation in decision-making processes about technology, these rights come with the responsibility for citizens to indeed inform themselves and to participate in order to democratize technology. In this paper, the different roles technological citizens can hold within the cybersecurity realm are clarified and illustrated with a reconstruction of a recent data breach in a Covid-19 related healthcare system in The Netherlands. This breach – from the moment it was exposed to the policy responses it triggered – involved actions of various types of technological citizens such as ethical and criminal hackers, cybersecurity experts, critical journalists, politicians and (potential) victims. Certain actors used their rights and responsibilities as technological citizens by taking action and sparking the public debate to criticize the technical and social governance of the system, causing effects in the political and private domain. This case study serves as an inspiration for how the sociotechnical security of the cybersecurity realm could be improved by evaluating and reimagining the different roles of involved technological citizens.

GARNAR, Andrew

University of Arizona

THE SEMIOTICS OF TECHNO-SOCIAL OBJECTS

George Herbert Mead describes social objects as those objects around which humans can coordinate their behavior. Through engaging with the social objects, such organisms can respond both to the object and to others. The concept of social objects has been extended from Mead's examples of property and the League of Nations out to the objects sustained by information and communication technologies. One example of such a techno-social object would be a "raid" performed by players in an online roleplaying game, where the players coordinate their actions with each other in an online environment. This paper examines the semiotics of techno-social objects. The role of signs is more overt in techno-social objects because of the role of visual signs in composing and sustaining these objects. Techno-social objects involve a wider range of signs than the objects Mead considered. Mead's objects mainly involve spoken and written words, along with material objects. Techno-social objects are composed of words, along with pictures, diagrams, sounds, etc.. This wider range of semiotic materials allows techno-social objects a wider range of functions, in particular in sustaining new sorts of social realities. The assembled signs produce a semiotic depth that operates like a reality. After briefly developing the concept of techno-social objects, I turn to providing a Peircian interpretation of the semiotics involved in such objects. Peirce's theory of signs captures the dynamics of these signs, without lapsing into the troubles of Jean Baudrillard or Albert Borgmann's analyses of hyperreality. The paper concludes by arguing that such a use of Peirce's semiotics opens possibilities for pragmatism within the philosophy of technology.

GÖKMEN, Arzu

University of Vienna

IMPLICATIONS OF SOCIOMORPHING FOR THE MORAL STATUS OF ROBOTS

Do we imagine our social relations with robots? Are human robot social exchanges merely fictional on the human part? As Johanna Seibt argues "we cannot treat human-robot interactions as fictional social interactions, i.e., as interactions where humans engage in fictional commitments to a social interaction" (2017, 21). She thinks this is theoretically not possible due to the nature of our social commitments. That is, one can make commitments in the context of some fiction, but out of that context one cannot fictionally make commitments, since fictionalizing a commitment, i.e. pretending as if you are making a commitment, is in fact to fail to make a commitment.

If imagining and fictionalizing is not exactly what happens in human-robot social interactions, then what is the correct terminology to describe this phenomena? Seibt et al (2020), recently offered a descriptive framework to account for this description problem. Sociomorphing, coined by Seibt et al., is the direct perception of actual non-human social capacities, and is better accounting to describe the phenomena than antropomorphizing which is mostly associated with human imaginative capacities.

I argue that this descriptive framework has integral normative implications (i) for the evaluation of moral status of robots in human-robot social relations and (ii) for the moral status of the relations themselves. If the humans in the interaction pick up the actual social ques and capacities of the robot, they cannot simply be considered being in an amoral relation although the other relata still is a machine. This asymmetry needs to be discussed and I aim to problematize the debates which either overestimate or underestimate the evidence that the capacity of social robots bring to the moral status (of robots) debate in the recent litrature.

GRANDJEAN, Nathalie

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TOWARDS A DIGITAL PERMACULTURE?

It is widely agreed to think that we have entered a “digital age". There are, however, a number of scholars who are convinced that we have entered the Anthropocene, an era of instability which is threatening our way of life, ecosystems and hence the survival of the human species. It is therefore legitimate to question the possibility that our world remains digital if it suffers from extreme ecological devastation? How to think about the future of the Web and the digital at the time of the Anthropocene?

Our proposal is speculative and is inspired by the ethical principles of permaculture (Holmgren, 2014). Permaculture, both ethical and practical, is guided by three major principles: "(1) take care of the Earth and all its forms of life, (2) take care of people (...) and (3) redistribute the surpluses (to the Earth and to people)”. In addition, permaculture is not dogmatic, because it is the detailed observation of the "environment" and its interactions that will determine the particular design, necessary for resilience. It is therefore not a question of applying principles to soil, but of taking care of both the processes and the living people inhabiting this space. As Puig de la Bellacasa maintains, “permaculture is an ethics of care, but also an a-subjective relational ethics, addressing humans and non-humans with the idea of taking care of living environments together, including humans and more-than-humans” (2017, 161). We find inspiration in this ethical and practical model of permaculture in order to re-think the way digital objects and cultures should be designed and implemented.

GRANDJEAN, Nathalie

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BREASTFEEDING APP' AS E-BIOPOLITICS ?

"Before having your baby, you may have envisioned breastfeeding as a magical and intuitive bonding experience with your newborn. And while elements of it are magical and beautiful, breastfeeding can actually be a very technical element of motherhood[1]"

This presentation explores the emotional, affective and political role that breastfeeding monitoring app' play in the mother-child relationship, in a context where breastfeeding is conceived as a 'natural' biopolitics (Foucault 1976).

The benefits of breastfeeding are widely publicized and it is the target of extensive health promotion campaigns. Breastfeeding is generally described as 'natural' – the opposite, infant formula, as 'artificial', leading to debates framed in in binary terms – for or against – with forceful pressure put on mothers to make the correct choice. As biopolitical and maternalist discourse, breastfeeding is heavily moralized and appears as an emotional and health imperative, as many scholars. Moreover, the individualized and neoliberal approach to breastfeeding promotion puts the burden of responsibility for infant and child feeding on women, isolating them from a broader helpful community.

Because it is always described as 'natural', some women do not see that breastfeeding is actually a very technical bodily practice, a "technique of the body" (Mauss 1968), which requires skills and training, both on their part and that of the baby. In order to successfully breastfeed and perform as a mother, some women install applications on their smartphones that allow them to record the number of feeds per day, how long they last, and on which breast.

I will demonstrate that if breastfeeding is a technique of the body, and if breastfeeding applications are biopolitical, that means monitoring and normalizing (breastfeeding) bodies, one needs to assess the role of these monitoring applications as a renewed biopolitics, an e-biopolitics.

[1] https://theeverymom.com/5-breastfeeding-apps-to-help-you-stay-on-top-of-your-nursing-routine/

GRANSCHE, Bruno

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STOP TURNING! HOW A TEXTURE FOCUS COULD MEDIATE THE TURN WARS IN PHILOSOPHY OF TECHNOLOGY

This paper will present a short overview over and critique of recent tendencies and turns in Philosophy of Technology (PoT) and propose a mediating perspective that might help avoiding the turn rhetoric altogether, namely a texture focus.

There are "Turn Wars" in PoT: After an Empirical Turn and an Ethical Turn, social, policy, engineering, thing/object, material, accompanying, narrative, hermeneutic, speculative, transcendental, ontophilic, anthropological, terrestrial turns are put forward, attacked and defended. Unfortunately, yet not accidentally, the use of the turn metaphor is largely misleading, it tempts to overemphasize differences and to underemphasize commonalities. That is due to its binary nature: To turn to concrete technologies, to individual users and specific use contexts thus tempts to turn away from more abstract aspects of technology, from systemic and socio-political contexts; to turn away from (overly) pessimistic techno-deterministic views tempts to turn away from any normative view or value-laden non-descriptivist positioning. No wonder that these consequences have to be compensated for by subsequent social, political and ethical turns, that then again lead away from the previous tun-focuses and so on. This dynamic is rather self-referential and should be overcome, because one turn is only necessary because of a previous one.

The hermeneutic and narrative turns are amongst the most recent in PoT and they interpret technology against the backdrop of the work of thinkers of language, narration and understanding – like Paul Ricœur. Textures – that is anything configured, put together by craft/techné, any arte-factum (not only texts!) – can serve as a guiding metaphor to focus on the similarities of technology and language, helping to bridge differences between techno-determinist and techno-instrumentalist views, individual and social/cultural levels of abstraction just like understanding and narration always bridge individuals and societies in an integrative perspective. Technologies just as laws, institutions, money, narrations and imaginaries etc. are determined (man-made), yet determining (given) entities; they are both textured and texturing.

GRATREAU, Elodie

Compiègne University of Technology

THE RISE OF NANOPSYCHIATRY: A TECHNOLOGICAL UTOPIA BETWEEN CURING AND CARING

Since the birth of biological psychiatry with firstly Kraepelin's work on nosography and later the beginning of the use of biological products for curing mental diseases, psychiatry has become more and more legitimate as a medical field, but mostly as a scientific field which is of great importance for being socially accepted. The efficiency of psychotropic medications on patients has brought out the neuronal hypothesis of mental diseases, and nowadays scientific research works on finding biological markers for measuring these diseases and curing them with a greater accuracy (personalized psychiatry). It is in this context that 'nanopsychiatry' is becoming a word often used for designating nanotechnologies applied specifically to psychiatry with the aim of improving diagnosis, cures, and comprehension of diseases. Promises are great and, as for nanomedicine, we can find more and more literature presenting a beautiful future with everyone being well thanks to technological innovations.

But one could argue that these technological advances are reducing psychiatry to biology as they seem to be based on the hypothesis of mental diseases being essentially biological (neuronal, genetical…) diseases and having to be treated with technologies as material instruments while we still don't know if our mental dimension can be reduced to a physical one. Dealing with the measurable dimension of mental diseases is certainly more curing than caring, when it seems that a more global approach of psychiatry, including caring aspects, would be benefic for patients. Without being technophobic, we will thus explore the utopia rhetoric about nanopsychiatry while having in mind the ideas defended by the philosophy of care.

GREIF, Hajo

Warsaw University of Technology

Co-author: Jan-Hendrik PASSOTH

How Transparent is Transparent Enough? The Epistemology and Pragmatics of Black Boxes in Artificial Intelligence

The renaissance of Artificial Intelligence (AI) is marked by two seemingly countervailing developments: more powerful and sophisticated computational resources on the one hand, and an increasing abstention from scientific modelling on the other. These are two symptoms of the 'black box' problem – the 'epistemic opacity' conveyed by complex computer models. In order to overcome this problem, one might reduce the complexity or scope of the model in order to gain epistemic transparency, or one might accept epistemic opacity and flout the traditional aims of science in order to gain performance. We outline a research project (under review) that seeks to elucidate the various notions of epistemic transparency versus opacity that are in play in these contemporary developments. Our working hypothesis is that there might not be an unequivocal a priori definition of epistemic transparency in AI, but a variety of situated practices of definition and use. In this light, we will address the question of the thresholds of acceptance of AI models: Under what epistemic and pragmatic conditions will a model count as 'transparent enough' for the purposes of inquiry or application? This research question will be addressed in an empirical investigation into various contemporary AI approaches. The empirical focus will be on AI subfields that vary in two key respects: scientifically oriented modelling approaches versus application-oriented AI solutions on the one hand, and complexity-reducing versus opacity-accepting approaches on the other. The fields are chosen with respect to their specific strategies of addressing (or avoiding) problems of epistemic opacity. Side-by-side with conceptual methods from philosophy of science, we will utilise a multi-sited ethnographic approach to empirically trace the conceptions of transparency, perceptions of opacity and strategies of resolving or coping with opacity in different AI subfields, and the specific rationales and justifications by which they are governed.

GROUD, Paul-Fabien

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REFLECTION ON THE PROCESS AND DEGREES OF EMBODIMENT OF LOWER AND UPPER LIMB PROSTHESES

Far from being a "simple" palliation of the amputated limb, the prosthesis is a complex object that deeply questions the boundaries of the body. The experience of amputation produces a rupture in the body image as well as a global modification of the body structure and schema. All body balances, postures and habits are modified following the amputation of a limb. Faced with this brutal reconfiguration (loss of limb, stump healing, phantom pain sensations) and the irreversible trauma of amputation, amputees must learn to rebuild themselves through the use of prosthetic devices, which have the double objective of rebalancing the body and making it functional again. This learning and acceptance of prosthetic devices in limb amputees is a long and singular process that raises many questions: how do amputees learn to use and live with a prosthesis? How do they manage to appropriate a material object that is foreign to the body, through various adjustment and accommodation processes? How do they feel and incorporate it into their body image and schema? Do they succeed (or not) in embodying it and making it a "prosthesis" as such?

Through the prisms of philosophical reflections, particularly phenomenological researches on amputation, and socio-anthropological approaches, the analysis of prosthetic experiences invites us to go beyond the notion of prosthesis as a “simple” object "added" to the body. From an apprehension of the prosthesis as a "tool", to its perception as an "extension of the body", various processes and degrees of embodiment of the prosthetic device are gradually emerging in people’s experiences with lower and upper limb amputations.

By cross-analysing the discourse of amputees and observations from fieldwork, we will study these processes and degrees of embodiment as they are experienced after amputation: in the short term during the initial period in the rehabilitation centre, then in the medium and long terms when amputees return home, to society and daily life. We will interrogate how the prosthesis needs to be conceived from and beyond its materiality.

GUCHET, Xavier

Compiègne University of Technology

THE "THINGLY TURN" IN THE PHILOSOPHY OF TECHNOLOGY. ASSESSMENT AND PERSPECTIVES (PANEL)

Fifteen years ago, Peter-Paul Verbeek coined the phrase "thingly turn" to highlight the need for more in-depth empirical studies of what technical artefacts concretely do to humans. Since the publication of What Things Do, the philosophy of technical artefacts has gained traction and has been constantly enriched with numerous contributions from an increasing number of scholars.

The purpose of the two-session panel is to foster a dialogue between scholars representative of the various ways of negotiating the "thingly turn" in the philosophy of technology, such as the metaphysical approach focused on the structure and function of arte-facts; the post-phenomenological approach focused on the concept of technological "mediation"; the anthropological approach paying attention to the materiality of artefacts, to their lifetime and circulation; and other approaches that are emerging in this dynamic research field.

The first session of the panel aims to present and discuss the main contributions to the "thingly turn" and to examine how far this trend has significantly reconfigured the philosophical questioning of technology. "What things do to the philosophy of technology" recaps the main topic of this session. A. Nordmann, P.-P. Verbeek and P. Vermaas have accepted to participate in it.

The second session aims to highlight how disciplines other than philosophy have undertaken their own "thingly turn", giving rise to multiple ways of defining and analyzing "things". "What kind of things in the thingly turn" is the guiding question of this session that brings philosophers, an anthropologist and a historian into dialogue. L. Coupaye, S. Werrett and the organizers of the panel (B. Bensaude-Vincent, X. Guchet and S. Loeve) will participate in it.

GUCHET, Xavier

Compiègne University of Technology

TISSUE ENGINEERING AND THE BIOCONSTRUCTION OF ARTIFICIAL HUMAN ORGANS

Organ engineering kindles increasing interest amongst champions of human enhancement. It is expected that soon, the manufacturing of complex 3D bio-artificial structures will be within reach, providing new strategies for replacing, and even enhancing them. Unsurprisingly, many organ engineers claim that this promise is inconsistent and that human enhancement is not their concern. However, the intertwining of organ engineering and human enhancement has a longer history than bioengineers usually fathom. Furthermore, the question of whether organ engineering is inherently suffused with assumptions that feed the human enhancement promises may be raised - namely the Cartesian credo that the body is nothing but a mere machine. As anthropologist L. Sharp argues, “the mechanical enhancement of the human-body-in-crisis is a natural extension of scientific medicine”. The only way to make organ engineering immune to human enhancement would be to bring engineers to give up this Cartesian view: bodies are not objects but subjects capable of suffering from technology. I intend to demonstrate that merging technological design and care within organ engineering practices requires more than giving up the Cartesian definition of the body: it requires a

new concept of the organ. In this respect, the antique meaning of organon (both organ and instrument) deserves scrutiny. In the end, the relevant debate around organ engineering should not be about being pro or contra human enhancement as such; it is rather about whether enhanced organs could make the individual better equipped for pursuing their own goals and values, or not.

GUTIÉRREZ, Elkin

Pontificia Universidad Católica de Chile

TECHNO-AESTHETICS AND GRAMMATIZATION

In this research, we propose that Gilbert Simondon's categories of aesthetics and techno-aesthetics allow composing new forms of techno-psycho-social individuation that counteract the negative consequences of the grammatization processes thematized by Bernard Stiegler.

Grammatization, in its cybernetic and industrial phase, as a machinic reproduction of grammes, discretization of vital flows, and spatialization of time, constitutes a conflict of memories (living memory and dead memory) whose schematism produces and reproduces a loss of know-how (automation of the gesture) and homogenization of know-how. These de-individualizing processes have serious consequences in the techno-psycho-social field since subjects and objects close on themselves, preventing all kinds of communication and meaningful information that can command new individuations.

In this context, we have posted a question that seeks to relate the notions of techno-aesthetics and grammatization, in which we assume that grammatization can lead to the locking of the subject and the object and lead to a loss of information and that techno-aesthetics and aesthetics are constituted as a possibility of opening and condition of new individuations; Is an aesthetic without esthetics possible? that is to say, an abstract aesthetic concerning the subject that either does not communicate the thesis that it contains because it has closed on itself or that does not contain any type of esthetic (aestheticism) to communicate. Both possibilities are a consequence of the grammatization processes. Faced with these possibilities, we think that Simondon's aesthetics and techno-aesthetics allow reactivating the affective-emotional and perceptual-active structures linked to the processes of esthetics since they require knowing the future of the subject and the object and imply the insertion of that becoming in the world's networks. Aesthetics and techno-aesthetics create new modes of affectation and new ways of being.

HADDOW, Gill

University of Edinburgh

EVERYDAY CYBORGS: AMBIGUOUS EMBODIMENT AND THE TRIAD OF I?

The ambiguous experience of embodiment is important when an individual's body is modified through biomedical procedures such as organ transplantation or cyborgisation. Such body modification creates a body that is no longer absent for the individual; this absence was a taken-for-granted assumption because in our daily lives our bodies have to be part of the background and not at the forefront; otherwise, the continuous focus on our bodies and our relationship to them would hinder and obstruct our day-to-day activities. The body does become a focal point of experience however when it is modified, it creates a reflection that causes the body to be constructed as a separate entity while also being that body. To separate, there was unity beforehand.

The integrity of the body's invisible spaces is as important to identity as the visible image. The dermal layer of the body when breached by biomedical practices that insert organs or technology is marked by the entry incision on the surface that allows the external world in, sometimes by force given how little space there is inside. The outside-in is also the inside-out. To some extent, what is placed inside the body will affect how the person will relate to others and how they interact in the surrounding space. Body modifications and subjectivity alterations affect others such as friends and family who are close to the implanted or transplanted techno-hybrid individual. For example, an everyday cyborg is affected by other people and environment who may damage, intentionally or unintentionally, the cybernetic device implanted inside and by implication, the everyday cyborg.

In this presentation, I will discuss how an ICD has the potential to alter the recipient's subjectivity and identity through creating a hybrid body.

HALLOY, José

University of Paris

ZOMBIE TECHNOLOGIES VERSUS LIVING TECHNOLOGIES

The ecological crises that we are experiencing, global warming, the fall of biodiversity, various forms of pollution, depletion of resources, water supply crises, etc., are calling into question the existence of humanity in the perhaps near future. These crises result from an intensive, even excessive, use of technology. Ecological crises result from the poor connection of technical systems to the Earth system. Humanity is becoming a force for planetary transformation, this is a definition of the Anthropocene. Technologies form closely interwoven systems that structure and modify living environments. Technical systems include different techniques, know-how, institutions and materials necessary for their functioning. Different technical systems include different materials and natural resources necessary for their functioning. Technologies resulting from the Industrial Revolution combines fossil fuels, metals and minerals. By comparing technologies in terms of their long-term sustainability, it is possible to distinguish between zombie technologies and living technologies. Zombie technologies are dead in terms of sustainability, but they continue to invade the world and act to the detriment of the living and humanity. Living technologies are adequately connected to the Earth system and collaborate with the living. They are potentially sustainable over millennia. It remains largely to invent them, even if there are some avenues to be explored.

HALPIN, Harry

MIT and Nym Technologies SA

CAN AI ETHICS JUSTIFY SURVEILLANCE?

Recently, there has been concern over the increasing widespread use of a host of technologies known colloquially as "AI" and the field of "AI ethics" has risen admirably to begin to address these concerns. However, a few years earlier there was equally widespread concern about the ethics of mass surveillance triggered by Snowden's NSA surveillance. As AI needs continually new data to optimize its performance, the otherwise admirable use of anti-discrimination framework by AI ethics appears more often to ask the question: "How can we ensure equal and non-discriminatory surveillance?" rather than "Should this data be collected by AI-based surveillance under any circumstance?"

This essay interrogates the latter question via a philosophical framework broadly-inspired by the Extended-Mind hypothesis of Andy Clark and the similar framework of transindividuation put forward by Bernard Stiegler. We note that AI as defined in the classical philosophical literature from McCarthy to Dreyfus to Wheeler does not exist (at least yet), but instead the term "AI" is used to cover up the use of machine-learning to automate classification tasks. However, as per Stiegler and Clark, the digital data needed by machine-learning serves both an extension of our very mind and body, mass data surveillance and utilization by AI impinges runs the risk of impinging on human autonomy and integrity, in addition to abuse by corporate and state actors like the NSA.

A number of provisional possible ways to apply a renewed AI ethics are put forward, ranging from privacy-preserving machine-learning to the democratic regulation of its use to even the abolishment of data collection. Lastly, contra AI abolition, we note the desirability of technology to harness collective intelligence - where technology extends rather than diminishes human intelligence and autonomy - in terms of a generating navigating a global crisis such as climate change.

HANNIBAL, Glenda

TU Wien

EMPHASIZING VULNERABILITY: INVESTIGATING CONCEPTUALIZATIONS OF TRUST IN HUMAN-ROBOT INTERACTION

The practical value of studying trust in human-robot interaction (HRI) rests on the assumption that in the long-term people will accept, interact, and collaborate more with robots that they trust or consider trustworthy [Lewis et al., 2018]. Aiming to increase the widespread use of robots in everyday life and society more generally, more attention has been devoted in HRI to understand and determine the various factors influencing trust between humans and robots. By now, results from empirical studies suggest that trust in HRI is multidimensional and that the different constructs are greatly interrelated [Hancock et al., 2020]. Moreover, given the design of anthropomorphic robots a shift has recently been made from using a conceptualization of trust as mere reliance to that of interpersonal [Ogawa et al., 2019].

In this paper, I will argue why regular conceptualizations of trust as mere reliance or as interpersonal cannot be directly transferred to interactions with robots that appear human-like without running into two conceptual challenges. After accounting for these challenges, I will present a transcendental argument as a theoretical move to bring forward vulnerability as a precondition of trust as the significant and common overlap between humans and robots. This focus enables a novel approach to studying trust in HRI because it is neither too narrow nor too broad in its conceptual scope. Then, I will sketch out the various vulnerabilities specific to both humans and robots and continue by suggesting three different ways a focus on vulnerability is of advantage for future studies on trust in HRI. Thus, I will contribute to ongoing research on trust in HRI not only by carrying out important theoretical work but also by providing concrete suggestions for how to explore empirically the link between vulnerability and trust. This, I believe, is useful and needed for more interdisciplinary efforts to strengthen trust in robots and their trustworthiness.

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HARTANTO, Budi

Independent Scholar

SCIENCE AND TECHNOLOGY LAYERS IN INDONESIA: THE INTERFACE BETWEEN TRADITION AND MODERNITY

Science and technology in Indonesia are considered relatively underdeveloped, as indicated by the inadequate technological innovations that are seen as the determining factors for economic growth. However, Indonesians have interacted with global S&T since the age of colonialism. According to Lewis Pyenson (1989), advanced exact sciences were already established in Indonesia before independence in 1945 with the existence of world-class scientists, modern educational institutions, and scientific instruments. In this paper, I will map S&T layers in Indonesia which consist of local knowledge, global S&T, and postcolonial S&T. These layers explain how existing cultures, religions, and postcolonial identity have influenced S&T practice and policy. Modification, synthesis, and critique are characters that are usually recognized. This eventually results in epistemological ambiguity regarding to scientific practice foundation.

The question concerning S&T development in Indonesia e.g., nuclear energy and rocket technology, is related to their nature which are projected for human sociality. Cultural diversity and geographical landscape (Indonesia is 70% ocean and located in the Ring of Fire/Circum Pacific Belt), for example, have contributed to the formation of S&T. Tim Ingold's social anthropology (2000) that describes the embeddedness of the technical and the social in pre-industrial societies can be used here as a reference. In hunter-gatherer societies, social relations precede technical relations. The success of hunting, according to Ingold, does not depend upon whether they utilize sophisticated instruments, but upon the appropriateness of human-nature (plant and animal as person) relations and bodily skills. Thus, the philosophy of technology is a subject that detaches technical artifacts as part of social relations. The effort to deliberate sociotechnical imaginaries (or S&T for better economy and well-being) needs to consider human sociality and its environment.

HASSE, Cathrine

Aarhus UNiversity

TECHNOLOGICAL ATTENTIONALITY: WHY ROBOTS AND AI CANNOT LEARN LIKE HUMANS

Phenomenology has gained a renewed importance as new technologies such as AI and robots emerge. Some claim, and other refute, it is possible to create robots and AI as "independent-minded creatures". It boils down to differences in how humans and machines make sense of the phenomenal world. In postphenomenology this has been a field of exploration, where scholars like Don Ihde, Peter-Paul Verbeek, Robert Rosenberger and Galit Wellner in different ways have asked questions about the relation between humans, their world and the way technologies act as mediators. Wellner for instance call for a new way of understanding attention as something other than just the opposite of distraction. The same line of thought is found in the works by the anthropologist Tim Ingold. In this paper I shall as a thought experiment turn the table: how do robots (with or without AI) pay attention to the world? How does robot attention compare to how humans pay attention? I contend that a significant difference between robot and human attentionality is that robots and AI do not learn to think in conceptual terms but in representations. Thus, their understanding of both humans and technology is detached from the situated and committed practice humans view their technologies as part of. No matter how many layers of machine learning the robot's AI goes through, it stays at the same level of learning about phenomena.

HÉDER, Mihály

Budapest University of Technology and Economics

EMERGENT FREEDOM: MODELING DECENTRALIZED BEHAVIORAL PATTERNS AGAINST ANTI-DEMOCRATIC STRANGLEHOLDS

In my presentation I investigate what kind of behavioral patterns a large, decentralized group of people under adverse conditions may follow to achieve their shared goals in the digital realm.

This interdisciplinary research aims to combine the field of emergent systems with novel technologies like distributed ledgers, zero-trust solutions and smart contracts.

The theoretical pillar of my research involves the investigation of the digital component of the strategies employed or attempted by various struggles for freedom around the world in the internet age, like the Serbian Otpor! movement at the turn of the millennium, the Hong Kong protester's "be water" approach or the tactics employed by Belarussian protesters at the beginning of the twenties.

These group efforts appear to be common in that they aim to be decentralized as to prevent the emergence of single, targetable or coercible leaders, need to operate without any meaningful vetting of participants and hence tolerate infiltration and takeover attempts and communicate in an environment where trust cannot be established.

These properties make these efforts a perfect subject for emergent systems research as it is, too, concerned with simple micro-behavior that may result in decentralized, and thus highly fault-tolerant macro systems. Taking into account some relatively novel developments, like the blockchains for deeds and well-known techniques like asymmetric cryptography, perhaps these efforts may be advanced to a new level.

In this approach, different agent level behavioral patterns can be evaluated to find out what are the characteristics of the macrosystem that emerges from them and where are the bottlenecks and minimal requirements. Furthermore, it will be tuned to simulate gradual and erratic levels of activity as well as sporadic or low-commitment participation so that not to assume ideal agents or require die-hard activists, just human behavior.

HEGARTY, Michael

University of Dundee

THE ONTOLOGICAL OUGHT: RESPONSIBILITY AND NECESSITY IN THE TECHNOSCIENTIFIC AGE

It might seem strange to affix an 'ought' to ontology. Ontology, after all, is the study of the relations and predicates of beings; if that is true, how then do we apply a word which would entail responsibility? What changes would our technological imaginary have to undergo? The answer, I argue, lies in reimagining the almost infinite potential of contemporary information technologies to alter the range of possible relations we have with each other and the world.

As contemporary ideas in philosophy of technology such as Don Ihde's postphenomenology have sought to show, technologies have always mediated reality. However, the tools which, before the Anthropocene, affected our reality arose primarily from a need or requirement endemic to the structure of experience. Today, I argue, we are in a different situation where specialists can, for instance, restructure the information contained in the human genome. What we must reimagine today is technology that has the potential to reorder reality, to affect the basis of experience at the most fundamental level.

Part one considers the legacy of Aristotelianism in relation to the concept of an ontological ought. I argue that when applied to ontology, Aristotelian dialectics have tended towards the treatment of ontology as constituting a system of relations independent of experience. Such treatments lend themselves to the notion that we cannot be responsible for our essential being. Part two explores how we can reimagine the idea of ontology in light of contemporary information technologies. I suggest that we need to develop an understanding of responsibility and necessity that takes account of this power. Part three concludes that our modern technological imaginary places an onus of action upon us which did not previously exist. This onus requires new conceptualizations of ontology.

HEIKES, Chelsea

European Graduate School

THE MAN/LAND DREAM

"The Man/Land Dream" traces technological imaginaries within the Earth Art movement of the 1960's and 70's to current practices such as Olafur Eliasson's "Ice Watch". While considering the actual machinery required to produce such gestures of moving earth, it is also necessary to unpack the phantasies and symbolic forms underlying the intent. How are the logics of power and value systems entangled in creation of monolithic Land Art different than the logics of more humble gestures such as Ana Mendieta's "Silhuetta Series", Richard Long's "A Line Made By Walking", or Sarah Cameron Sunde's more recent "36.5/A Durational Performance with the Sea"? Also, are there similarities? How are the logics at work in the production of these art pieces also working to produce The Anthropocene, as a conceptual/philosophical/artistic object?

HEINRICHS, Jan-Hendrik

Research Centre Juelich

WHICH KIND OF AUTONOMY DO DIGITAL ASSISTANTS ENDANGER?

Digital assistants, health apps, recommendation systems threaten our autonomy it is claimed repeatedly in literature. This talk will ask, which aspect of autonomy exactly is thought to be under threat, and provide a note of caution against making too far sweeping inferences from threats to particular aspects of autonomy to threats to the whole.

For this purpose a differentiation will be introduced: 'Being autonomous' can be read either as a description of an action or process – as an action term – or as a description of a resulting state, a success term so to speak. As an action term it refers to employing a set of abilities and capacities to determine one's own life in direct engagement with one's environment. As a success term it refers to a property of one's completed decisions, namely the property of not having been influenced by factors which the person would not endorse (or be deeply alienated from) (Christman, 2004, p. 153) if they were transparent to her. Neither an action nor a success term alone is adequate to the phenomenon of autonomy. Being autonomous seems to be both, a type of action and a type of success.

I want to claim, that by putting too much emphasis on the success component of autonomy, we come to think that autonomy can be brought about by ideal circumstances such as ideal choice architectures in digital assistants, health apps, or recommendation systems. If autonomy is considered a success to be brought about by these circumstances, then this raises impossible standards for digital assistants and all other choice architectures. Their positive effects on the action components of autonomy will be obscured, resulting in overly one-sided ethical evaluations of these technologies.

HENDL, Tereza

University of Augsburg / LMU

Co-author: Bianca JANSKY

A MATTER OF JUSTICE: WHY DIGITAL HEALTH TECHNOLOGIES WARRANT AN INTERSECTIONAL FEMINIST PERSPECTIVE

Despite being novel in multiple ways, digital health technologies (DHTs) have incorporated many gender issues dominant in medicine and healthcare. As such, they have been critiqued for exacerbating and reinforcing old yet pervasive structural inequalities. The recent rapid growth of the 'Femtech' sector has been celebrated by some as a much-needed response to the gender blindspots and imbalances persistent in DHTs and health care more broadly. However, at a closer look, much of 'Femtech' involves a wide range of gender issues, including sexist design, problematic notions of sex, gender and sexuality, reductive and stereotypical conceptualisations of womanhood and 'female health' as well as ethically troubling business models commercialising user data. We argue that instead of placing hopes into the narrowly construed 'Femtech' sector, an intersectional feminist perspective needs to be implemented across the DHT field. We contend that as a matter of health justice, all DHTs ought to eliminate gender, racial and various other imbalances and inequalities to ensure a fair distribution of health benefits and user protections.

HENDL, Tereza

University of Augsburg / LMU

Co-author: Tiara ROXANNE

DIGITAL SURVEILLANCE IN A PANDEMIC-RESPONSE: WHAT BIOETHICS OUGHT TO LEARN FROM INDIGENOUS PERSPECTIVES

Our paper interrogates the ethics of digital pandemic surveillance from Indigenous, and particularly Native American, perspectives. We draw on rich evidence that in the US, Native Americans are among communities most vulnerable in a pandemic context, due to structural marginalisation and comorbidities stemming from it. However, digital pandemic surveillance technologies, which have been promoted as effective tools for mitigating the spread of COVID-19, also carry significant risks for these subpopulations, owing to the continuing legacy of colonial oppression. Building on scholarship on health justice, decolonial scholarship and debates about Indigenous Data Sovereignty, we interrogate whether and under which conditions digital pandemic technologies can be relevant to and benefit Indigenous peoples. We argue that should Indigenous communities wish to implement digital pandemic surveillance, then these communities must have ownership over these technologies, including agency over their own health data, how they are collected and stored and who will have access to them. Ideally, these tools should be designed by Indigenous peoples themselves to ensure compatibility with Indigenous culture, ethics and languages and the protection of Indigenous lives, health and wellbeing.

HERMANN, Julia

University of Twente

THE CONTRACEPTIVE PILL AND CHANGES IN SEXUAL MORALITY: A TECHNOMORAL REVOLUTION?

The changes in sexual morality that have occurred in the Western world during the second half of the 20th C. are arguably among the most radical recent changes in morality. They took place at different levels, including that of moral norms, views, and even ethical theory. For Wibren van der Burg, these changes are "probably the most extreme example of [recent moral] change". He emphasizes the complexity of those changes, which were brought about by a combination of factors, among which the introduction of the contraceptive pill. The role of the pill in the changes of sexual morality has also been used as an example for what has been referred to as technomoral change. How significant has the role of technology been in these changes, and should we conceive of these changes as revolutionary? Some authors have identified instances of moral change that they take to be "moral revolutions". In this talk, I consider the recent changes in Western sexual morality as a candidate for what I call a "technomoral revolution". I analyse this case by looking at the following dimensions, some of which are taken from Baker's analysis of moral revolutions: moral anomaly/critique; paradigm shift; new concepts/terms; role of technology; role of individual agents; role of institutions; dissemination of new moral views; social disruptiveness of change.

HERNANDEZ, Nicolas

ALEPH

SECOND CASE STUDY: SEARCH CLEAR AND SEARCH DARK, A STATISTICAL TOOL TO COLLECT, ANALYSE AND DISPLAY VERY LARGE VOLUMES OF DATA

Aleph-Networks has developed several tools, among which Search Clear and Search Dark. Both are search engines that allows the user to create his/her own search and analytics infosphere enriched by intelligent and high-volume sourcing. The user builds his/her infosphere by entering websites he/she finds interesting and then Aleph's crawler brings back websites linked to the entered websites. Rather than going through a search engine (like Google, where the algorithms prioritizing the information are already set up), Search Clear and Search Dark build access to information from the choices of the users. Users choices are magnified by the computational power of Aleph's crawlers, even when the information is not referenced (deep and dark web). These search engines are flexible and progressive, they care about the knowledge possessed by the users, they allow to create a personalized search area. Moreover, the reported information is represented in the form of relational graphs (and not a list as on Google for example), both because in our opinion all knowledge is relational in nature but also because the web is organized in a relational mode.

Aleph's technologies are oriented towards large volumes, but the user remains at the heart of the tool. It is not a question of letting him be overwhelmed by computing power, but of being a partner of this power. Ultimately, our ambition is to make Stemic and Search Clear/Dark technologies able to communicate. The user puts his imagination in Stemic, in the form of a graph, then it is sent to Aleph's search engine, which will create a personalized search area.

The aim of this subpanel is to present Search Clear and Search dark technologies by showing how the user is once again at the heart of the tool. It is very important for us, especially with big data, to develop tools that support human-machine companionship, to make the computing power become a partner of human beings (and vice-versa), rather than an overwhelmingly dispossessing power.

HERZFELD, Noreen

St. John's University

SERVANT OR PARTNER: WHAT ARE WE LOOKING FOR WHEN WE LOOK FOR AI?

There is a fundamental tension in our search for human-like or sentient AI. From its inception in WWII, computer technology has been designed to serve human needs, aiding us in tasks we cannot or do not wish to do. As we imagine AI, however, we imagine computers, not as tools, but as partners, companions, even lovers—not something we use, but someone we relate to. But is it possible to have a true relationship with a machine?

Theologian Karl Barth lays out four criteria for an authentic relationship: look the other in the eye, speak to and hear the other, aid the other, and do it gladly. I will use these four criteria, as well as current imaginaries in both fiction and in AI labs, to examine the question of whether we can have truly authentic relationships with AI or whether any relationships we do have, given the nature of technology, must necessarily devolve into that of servant and master.

HEVIA MARTINEZ, Germán

University of Oviedo

WHO'S AFRAID OF THE SOCIAL ENGINEER? INSIGHTS ABOUT THE TECHNOLOGIES OF THE SOCIAL

The interrelationship between society and technology has been a recurring topic of study not only for those commitment to the field of science and technology studies, but also to social scientists (from sociology to management studies). From the research in those fields arise an issue that has not been address properly yet; at least, and as far as I know, in an explicit nor in a deep way. Nor in the disciplines cited before neither in the philosophy of science and technology. That issue is the possibility of talking about "social technologies", in the sense that there are some fields in the realm of social sciences whose knowledge -although is referred to social phenomena- can be better understood if it is considered –epistemologically- as technical knowledge. It is true that in the so-called engineering tradition of the philosophy of technology there are some insights about this question: but their account seems to be only a "translation" of characteristics from one group of fields to another without any kind of case study or empirical observation to back up its claims.

I this talk, I address the problem of applying the (philosophical) distinction of science and technology to the disciplines that study (or that deals with) social phenomena. Though this topic has not been studied in-depth yet, there have been a few scholars that have tried to address it, whose arguments I shall discuss.

First, I will expose the demarcation problem regarding this distinction. Second, I will exhibit the arguments of those researchers who consider that it is possible to talk about technological disciplines in the fields that deal with the social world and that had developed a framework to acknowledge it. That is the case of Karl Popper's piecemeal social engineering, Olaf Helmer's social technology, and Mario Bunge's sociotechnology.

HILDEBRAND, David

University of Colorado Denver

THE QUEST FOR ABSOLUTE SOUND: WHAT ARE THE PHILOSOPHICAL STAKES FOR AUDIOPHILES?

One needn't be a Luddite to recognize with Neil Postman that "Technology giveth and technology taketh away." Technological imaginaries dominating a given culture (as Heidegger, Dewey, Borgmann, Ellul, et al. point out) frequently obstruct more desirable forms of life. But how do we gain perspective on that which forms the background of our lives?

Because something like an imaginary is so grand-scale, it proves difficult to analyze, ab initio. Here, I illuminate larger structures by investigating the quotidian practice of listening to reproduced music. I examine three important questions raised by audiophiles, a community intently focused on the nexus between technology, art, and cultural experience.

Most have met an audiophile, encountering weird monolithic speakers, glowing amplifiers, or a vipers' nest of cables. What seems mere fetishism from the outside is actually a complicated crossroads of acoustics, technological devices, engineering, aesthetic evaluation, consumerism, and psychological habits involving listening and distraction.

Audiophiles' questions have philosophical implications which help limn larger technological imaginaries affecting how we both experience other phenomena and one another. Art, as a form of communication, is modulated by technology and its associated epistemic assumptions. Understanding these helps reveal larger environing forces -- imaginaries.

Outline: After introducing the topic (distinguishing "audiophile" from "regular" listeners), three audiophile questions and their philosophical implications are sketched:

(a) Should reproduced music be evaluated with objective measurement (symbolic, quantification) or subjective description (sensuous, qualitative)?;

(b) Should realizing sonic goals rely predominantly upon objects ("gear") or environment (room, listener, etc.)? (Is an ontological choice fundamental, here?);

(c) Should music reproduction aim at realism ("naturalness," "organicity") or construction (interpretation, artifice)?

A brief conclusion ties these questions together by locating their participation in two dueling technological imaginaries — realism, paying special heed to objects, the physical, and the quantifiable vs. constructivism, focusing upon personal experiencing, emotions, and qualities.

HOFBAUER, Ben

TU Delft

DISRUPTED DREAMSCAPES. THE EFFECTS OF STRATOSPHERIC AEROSOL INJECTION ON THE CONCEPT OF SUSTAINABILITY

The emergence of "Socially Disruptive Technologies" (SDTs) such as AI, Nanotechnology, or Geoengineering could fundamentally impact how humans understand themselves and nature. This impact can be interpreted on the basis of how these technologies impact current value systems. However, philosophical scholarship on new and emerging technologies is only beginning to pay attention the concept of social disruption. In this paper I explore how socially disruptive technologies might affect value systems, in order to contribute to this nascent discourse. Specifically, I focus on how the value of sustainability, as understood in our current sociotechnical imaginary, is impacted by geoengineering in the form of Stratospheric Aerosol Injection (SAI). Following Philip Nickel (2020), I argue that disruption differs from conventional value change in that it causes normative uncertainty, an epistemic state wherein we lack the moral understanding of what action to take. SAI, I claim, causes such disruption by undermining the value of sustainability. If SAI is deployed, it might turn the unsustainable burning of fossil fuels into an apparently sustainable undertaking. This may lead to sustainability becoming an obsolete value in terms of climate change. I proceed in the following way: First, I expand on the notion of sociotechnical imaginaries by locating the role that sustainability plays in an imaginary centered around climate action. Imaginaries provide us with a holistic understanding of how values influence the way we perceive the world. The concept of imaginaries (Jasanoff 2015; Taylor 2002) thus serves as a framework for locating disruptions within a value system. In our current imaginary, sustainability matters to us because it ensures the intrinsic value of continuous societal well-being. I then show how SAI undermines sustainability as a value, disrupting the sociotechnical imaginary. This leaves us in a state of normative uncertainty.

HOLY-LUCZAJ, Magdalena

University of Information Technology and Management in Rzeszow

Co-author: Vincent BLOK

PHENOMENOLOGY OF HYBRIDS

Synthetic biological inventions, nanotechnological devices, or biomimetic structures appear to be hybrids since they straddle the boundary between naturalness and artificiality. As such they constitute a peculiar phenomenon, which does not have a counterpart in the past. To grasp the phenomenon of hybrids adequately, given its significance for the sustainability of the environment, we need new ontological categories, since the traditional dichotomy of nature and technology is no longer valid. The very first intuition is that phenomenology may be of help because it aims to avoid any ontological prejudices. However, as we shall demonstrate, the founder of phenomenology, Edmund Husserl, as well as later postphenomenology and ecophenomenology exhibit some limitations in this regard. Namely, they accept without questioning the binarism of nature and technology. In order to formulate a more appropriate concept regarding the ontological status of hybrids, we shall turn to the phenomenology of Martin Heidegger and James Gibson. Drawing upon their ideas, we will argue that their perspective is ontological because they are focused on relations, whereas Husserl, postphenomenology and ecophenomenology represent ontic approach since they are primarily concerned with entities. Reconstruction of this divide will enable us to lay out the phenomenology of hybrids that builds on the idea of relationality as functionality which is the category crossing the boundaries of technology and nature. The key insight will be that functionality is embedded in the responsiveness to the needs (in our case, of the ecosystem). Elaborating on it, can shed new light on the problem of use of hybrids, accordingly to do concepts of “the proper use” (eigentlich brauchen) in Heidegger and affordances in Gibson.

HOPSTER, Jeroen

University of Twente

THE STRUCTURE OF TECHNOMORAL REVOLUTIONS (PANEL)

"Men make their own history, but they do not make it as they please; they do not make it under self-selected circumstances, but under circumstances existing already, given and transmitted from the past," Karl Marx (1852) observed. He did so when analyzing the typical unfolding of revolutions, which have a tendency to conjure up the spirits of the past. The imaginaries of revolutionaries take inspiration from the language, customs and culture of their predecessors. Marx added, however, that the social revolution he envisioned in his own century "cannot take its poetry from the past but only from the future." While Marx's ideas endure as a reference point for contemporary scholarship on revolutions, the topic has been taken in new directions. Kuhn (1962) drew attention to the structure of scientific revolutions, and in recent years scholars have begun to single out moral revolutions as a distinct topic of inquiry (Appiah 2010; Pleasants 2018; Baker 2019). The latter topic merits special attention from the philosophy of technology, as it is closely related to studies of technomoral change (Swierstra 2013), and more generally to the co-evolution of technology and society. Key questions about the role of technology in moral revolutions, however, have yet to be answered. How does the notion of "technomoral revolution" relate to the notion of "technomoral change"? Are there regularities about the role of technologies as enablers of moral revolutions? How do structure and agency relate? Can we make our own morality, and do so as we please? This panel brings together scholars on moral revolutions and technomoral change, with the aim of acquiring a better understanding of the role of technology in moral revolutions. The first abstract provides an overview of recent work on moral revolutions and discusses how these have been conceptualized in the philosophical literature. Subsequently, four abstracts engage with specific case-studies that prima facie constitute plausible candidates of technomoral revolutions, albeit at different levels of granularity: 1) The contraceptive pill and changes in sexual morality; 2) Weapon technology and the disappearing practice of dueling; 3) Changes in modes of production and the resultant axiological changes throughout human history; 4) The contemporary role of AI in changing fundamental moral values. Which of these case-studies can be adequately framed as a technomoral revolution, and what are the promises and pitfalls of doing so?

HOPSTER, Jeroen

University of Twente

WHAT ARE SOCIALLY DISRUPTIVE TECHNOLOGIES?

Scholarly discourse on “disruptive technologies” has been strongly influenced by disruptive innovation theory. This theory is specifically geared towards analyzing disruptions in market and business contexts. As a result, it is of limited use in analyzing the broader social, moral and existential dynamics of technosocial disruption. Yet these broader dynamics are of particular societal and ethical concern. Technologies can disrupt social relations, institutions, epistemic paradigms, concepts, values, and even the nature of human cognition and experience – domains of disruption that are largely neglected in the existing discourse on disruptive technologies. Accordingly, this paper diverges from the disruptive innovation framework and seeks to reorient scholarly discussion on disruptive technologies around the broader topic of “technosocial disruption”. Addressing this topic raises two foundational questions. First, how can technosocial disruption be conceptualized in a way that concords with colloquial usage and that is conducive to further theorizing, while clearly being set apart from disruptive innovation theory? Secondly, what grounds a technology’s social disruptiveness? More specifically, are there criteria in virtue of which the degree of social disruptiveness of different technologies be ascertained? This paper clarifies these questions and proposes an answer to both of them. In doing so, it advances technosocial disruption as a key analysandum for future scholarship on the interactions between technology and society.

HOPSTER, Jeroen

University of Twente

TECHNOSOCIAL DYNAMICS UNDERLYING CONCEPTUAL CHANGE: TOWARDS A TYPOLOGY

Emerging technologies put pressure on our conceptual frameworks. They do so in various ways: technologies may serve to sharpen or dissolve dichotomies, to generate new ontological and evaluative concepts, to alter a concept's domain of application, and to eliminate concepts. In this presentation, I provide an overview of different types of technosocial dynamics that underly conceptual changes. I identify six such dynamics and illustrate them with historical and contemporary examples. 1) Technologies engender new imaginations, as exemplified by the emergence of the concept of ROBOT. 2) Technologies give rise to new domains of human practice and thereby facilitate horizontal concept extension, as exemplified by the concept of CYBERBULLYING. 3) Technologies give rise to normative reorientation: they direct human attention away from certain normative issues and towards others, as exemplified by the concept of HUMAN OBSOLESCENCE. 4) Technologies provoke descriptive reorientation: they serve to change human beliefs about reality, as exemplified by the concept of FREE WILL. 5) Technologies give rise to contexts of moral confusion and uncertainty, thereby indicating limitations of our current concepts and the need for reinterpreting or sharpening them, as exemplified by the concept of ADULTERY. 6) Technologies give rise to new hybrid entities and experiences, thereby softening the boundaries of existing dichotomies and transforming its constituent concepts, such as concept of VIRTUAL. I conclude that this typology, and efforts to refine and expand on it, can benefit theoretical work on the nature of disruptive technologies, value change and technomoral change.

HUFF, Jackie

Penn State University

EXPLORING THE ROLE OF THE ENGINEER WITH FIRST-YEAR ENGINEERING STUDENTS

Instructors of a first-year engineering design courses are presented with an important opportunity to shape students' idea of engineering. Many engineering students start their university studies with only a vague idea as to what engineering is. When prompted, they will tell you that they chose their course of study because 1) they are good at (and/or enjoy) science and mathematics and 2) they have an aspirational aim to make the world a better place. However, what that "better place" might be is often left unexamined. In an effort to start this important examination, a module is being developed to help students consider what technology is, its purpose, as well as the role of the engineer in its development and deployment. Recent iterations of this module have included lessons on inclusive design, empathetic design, the merits of efficiency, the maker movement as a social & political movement, and critical examination of technology and engineering. This presentation will discuss current efforts to engage first-year engineering students on an exploration into the intersection of technology and society.

HULL, Gordon

UNC Charlotte

BIAS IN AI SYSTEMS: WHAT WE CAN LEARN FROM RACIAL DISPARITIES IN KNEE PAIN DIAGNOSES

AI systems are challenging traditional accounts of both human/technology relations and agency. This paper uses recent work on a deep-learning system used to diagnose knee pain (Pierson et al., 2021) to argue that understanding the agency of AI systems on an assemblage or network model is an important component of dealing with ethical issues like bias. This result suggests that debates in AI ethics need to be open to these broader, nominalistic accounts of agency.

Black patients historically report more knee pain for comparable osteoarthritis severity (as measured by standard radiographic measures like the Kellgren–Lawrence Grade (KLG)), than do white patients, which tends to lead to undertreatment of their pain. The Pierson et al. model (ALG-P) uses radiographic images to predict a patient's pain, and its use radically reduced racial disparities. How can we understand this result? Most literature on bias and AI looks at the AI system and its training data. Here, that obscures that the radiographer is herself working with a diagnostic rubric, and so turns out to be an assemblage ("radiographer+rubric"), whose agency is defined by an attempt to interpret the image in terms of OA severity, as defined by the rubric. The assemblage turns out to be biased because the rubric was developed decades ago, using unrepresentative samples of patients – biased training data. ALG-P does better by redefining its agency, not just because it uses different data, but by training itself to a different endpoint: reported pain, rather than the rubric.

The question of bias, then, cannot be understood in this case without disaggregating the agency of both the human and machine-learning systems. Both need to be understood as assemblages coordinating toward a particular endpoint. I close with some remarks about the implications of this case for AI Ethics.

HUNSINGER, Jeremy

Wilfrid Laurier University

WHAT ETHICS FOR A FUTURE DIGITAL ART?

Today those digital systems are human-designed and implemented; however, that will not be the case for all time. Many human designs tend to humanize digital art, but as digital art meets its digital audience, as happened with bot language, it will transform to meet that audience. Eventually, many aspects of digital art could be related primarily to digital systems/ai as audience, much as most of the information on the www, while seemingly designed for humans, is consumed by search engines like google and others. This paper argues that given recent trends in archiving, searching, analysis, and representation of digital art continue along likely trajectories, which will be augmented by machine learning, digital vision, and related digital hermeneutics, digital art will have to address the inhuman audience constituted by those technologies. This transformation is similar to how art has transformed in relation to museums, archives, galleries and new publics. This transformation will means arts relationship to humanity is weakened, as we have already seen can happen in the machine learning world, where languages and algorithms have moved beyond human comprehension when used between machines alone.

Secondarily, this paper argues that this new digital art, with its digital creator and its inhuman 'audience/s' might be otherwise inaccessible to humans, and thus it does not require human-centric ethics. Nevertheless, the world would undoubtedly have an interest in it. Ecologically the art would have implications for humans and the world, much like contemporary art does, though the ecologic is frequently forgotten in favour of the aesthetic. Thus anti-humanist ethics based on ecological considerations could be the best ethics for this new form of digital arts.

IHDE, Don

Stony Brook University, emeritus

MATERIAL HERMENEUTICS: REVERSING THE LINGUISTIC TURN (BOOK PANEL)

This panel brings together four chapter authors from my forthcoming book, *Material Hermeneutics: Reversing the Linguistic Turn.* It's 13 chapters are dedicated to Paul Riceour, who was largely linguistic. From my first hermeneutic book: *Hermeneueutic Phenomenology; The Philosophy of Paul Ricoeur*, I have shifted to imaging technologies in science and a material hermeneutic which lets things speak. The book has a lot of examples of this, primarily with respect to human origins and migrations.

IHDE, Don

Stony Brook University, emeritus

Ever since my first book on Philosophy of technology, Technics and Praxis (1979), I have held that without technologies—instruments—science is blind, no instruments (technologies) = no science. Peter Paul Verbeek, today Europe's, number #1 Postphenomenologist -technology mediation philosopher, early recognized this as an incipient Postphenomenology when he claimed in Hans Actherhuis's 1997 book, Van Stoommachine tot Cyborg, later in English, American Philosophy of Technology: The Empirical Turn (2001,English translation by Robert Crease), "Ihde gives a new twist to Heidegger's conviction that technology has primacy over science not because the technological mode of thinking is presupposed in scientific thinking, but because contemporary science is helpless without technologically mediated perceptions" (p. 140).

This panel, shows how Material Hermeneutics is a more mature, evolved postphenomenology than its early form. I now see more how science changes, EMS (early modern science) is very different from today's PMS (post modern science) and the praxical difference lies in the style of instrumentation which changes with each style of instrumentation as does each way of changing perceptions. Galileo dominated the post-Renaissance 17th century with his plain glass optics (telescopes and microscopes) which did indeed change perceptions, through magnification which showed both macro and micro-phenomena never seen before—sunspots, mountains on the Moon, phases of Venus, etc., even labia of bees, plant cells, etc. But of equal importance were unnoticed limitations. For example, white light, plain glass telescopes which limited Galileo's powers to sub-flint glass resolution, made for a very small and limited universe. Galileo's telescopes gave no sense of star distances, for example, the closest star, the Sun did not even have a measurement –earth to sun-until Cassini first made such a measurement 39 years after Galileo's death, and the second closest star, 4.5 light years away, was not measured until LMS in the 19th century. No previous instruments were possible for the parallax effect. LMS (18th-l9th centuries) was marked by many variants upon the discovery of the electro-magnetic spectrum by Maxwell and ironically, first believed to be infinite; but it was later proved finite, measuring only short gamma to long radio waves and leading to instruments which revealed multiple dimensions of previously unperceived thermal, magnetic, and multiple dimensions of perception actual in animals and other natural phenomena. But it was not until the 20th and 21st centuries, and what I call PMS (post modern science), that nano and micro-process styled instruments, such as lasers, electronic microscopes, radio-telescopes became dominant that multi-million measurements became possible, as well as the "material hermeneutics" with new forms of perception became possible. The 13 chapters of Material Hermeneutics: Reversing the Linguistic Turn, rich with new examples and case studies show how contemporary science can finally fill our universe with DNA, Black Holes and the rich plethora of phenomena now part of our Lifeworld.

IMANAKA, Jessica

Seattle University

AGAMBEN'S "HUMAN BEING WITHOUT WORK": LIBERATION FROM NEW FORMS OF SLAVERY IN A REIMAGINED ONTOLOGY OF USE AND FORM-OF-LIFE

This paper develops Giorgio Agamben's disparate remarks on technology into an expansive theory of technology. This theory centers upon Agamben's conclusion of the Homo Sacer project in The Use of Bodies, while sourcing inspiration for new technological imaginaries from his subsequent books, particularly The Adventure, Creation and Anarchy, and The Kingdom and the Garden. A close textual reading of The Use of Bodies commences with Agamben's assessment of Aristotle's notion of the "workless" slave as having a function defined by "the use of (their) body". Agamben's consideration of the slave and the household in relation to the figure of bare life must be analyzed in terms of his critique of the "ontological-biopolitical machine of the West" (Agamben 2015, p. 203) and schematization of new ontological possibilities through a re-thinking of the categories of use and potentiality. Exploring Agamben's suggestion that: "the hypertrophy of technological apparatuses has ended up producing a new and unheard-of-form of slavery" (Agamben pp. 78-9), we show how Agamben's account of anthropogenesis links Ancient slavery to new technologies, while imagining different potentialities for anthropogenesis. Agamben thinks contemporary anthropogenesis converts people into human-machines further detached from animality and nature, and yet he suggests that the coming politics resists an end to anthropogenesis. McQuillan's (2018, 2015) applications of Agamben's "state of exception" to critique the ubiquity of machine learning and algorithmic regulation are illustrative. Following Vlieghe (2014), we argue that Agamben should not be construed as technophobic as charged by Stiegler (2010). Combining multiple recent texts by Agamben, we elaborate upon Agamben's recommended "ways out" of the Western machine that produces bare life through its myriad apparatuses. Agamben's vision draws from modal ontology, form-of-life, destituent potential, and inoperativity, opening anthropogenesis to unending possibilities for use-of-oneself. His later works facilitate this imaginary with notions of hope, adventure, and the multitude.

IMBONG, Regletto Aldrich

University of the Philippines Cebu

SOCIOTECHNICAL IMAGINARIES, TECHNOLOGICAL DEPENDENCE, AND THE TECHNOPOLITICS OF SPECIALIZATION: THE CASE OF THE ISI IN THE PHILIPPINES

This paper will build on the analysis of Daniel McCarthy (2021) concerning the conceptual framework of the sociotechnical imaginaries. McCarthy (2021, 297) pointed out a theoretical gap of the sociotechnical imaginaries approach expressed in its "incapacity to register the causal consequences of inter-societal multiplicity." Such an incapacity, I will argue, glosses over the persistence of neocolonialism and dependency especially in the Global South. This paper aims to reimagine the theoretical framework of the sociotechnical imaginaries by placing it in dialogue with the dependency theory developed by Samir Amin. The paper will present how the most relevant literature concerning the sociotechnical imaginaries approach work on the assumption that every polity has available or existing techno-epistemic networks from which imaginaries are independently defined. On the contrary, the paper will argue that given the notion of international specialization developed by Samir Amin and accepted today by some STS scholars, the technopolitics of specialization constrains how peripheral countries like the Philippines define their own imaginaries. The paper will examine the global political and economic developments in the 1950s to 1970s, especially the implementation of the Import Substitution Industrialization (ISI) in the Philippines.

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ALVI, Irfan

Alvi Associates, Inc.

EVOLVING THE ENGINEERING WAY OF THINKING: APPLICATION TO SOCIOTECHNICAL SYSTEMS

We need only look around us to see that the EWT has been profoundly effective in facilitating technological evolution. Can this continue indefinitely? The EWT has been developed by engineers for application to the design and management of technological systems, focusing primarily on the physical aspects of such systems. However, technological systems are typically parts of broader sociotechnical systems that involve both technology and people, and there may be constraints on the EWT as a heuristic tool to do engineering in such contexts.

I argue that the EWT is not limited to consideration of only physical aspects of sociotechnical systems. Basic research in social science over decades has developed a valuable knowledge base regarding human thought and behavior, and the EWT can be applied to it to expand and the evolve the EWT itself. As a result, the EWT can become a heuristic tool suitable for holistically understanding, designing, and managing sociotechnical systems in a manner that does justice to their complexity.

This paper and presentation will provide examples of how the EWT has been evolved to become capable of addressing the "human factors" involved in sociotechnical systems, specifically in the domain of dam engineering. It applies to retrospective forensic investigations of dam failures as well as prospective formulation of best practices to manage dam safety risk, accounting for fallible humans and finite resources.

IRRGANG, Bernhard

TU Dresden

Co-author: Friederike FRENZEL

AN OUTLINE OF THE CYBERPHILOSOPHICAL PROGRAM ATTEMPTING TO GROUND THE HYPERMODERN CIVILIZATION EPISTEMOLOGICALLY

The Cyberphilosophy we propose picks up the reflections of Don Ihde and Albert Borgmann on an expanding hermeneutics and contrasts them with the challenges of the AI, algorithmic and cybernetic-synergetic turns, in order to develop an extended methodological hypothesis for a phenomenological-hermeneutics research by humanities in the fields of current science and technology. It takes a standpoint grounded in embodiment, lifeworld and common sense as its basis. Questions of social and intercultural embedding such as the user and the designer function, as well as problems of nature and environment thus come into focus.

The interpretive horizon of Cyberphilosophy encompasses a phenomenological-hermeneutic interpretation of the results of evolutionary epistemology, neurodarwinism, brain research and psychology. Two dimensions of human cognition are opened up: First, sensorimotor behavior and communicative practices including technological experimentation and its design extensions is treated by a cyber-phenomenology of perception and behavior in critical engagement with forms of the algorithmic turn of pattern formation and design recognition. The second aspect of Cyberphilosophy involves a cyber-hermeneutics of verbal language and reasoning, including its self-referential skeptical questioning against the background of evolutionary-linguistic genesis. It points, in turn, back to the sensorimotor dimension.

It is a crucial aspect of human cognition that humans are not only able to learn, but also to teach. Within the framework of a Cyberphilosophically interpreted connectionism, a conception of Deep Design is thus proposed, in addition to the field of Deep Learning.

IRWIN, Ruth

RMIT University

NEGENTROPY FOR THE ANTHROPOCENE; STIEGLER, MAORI AND EXOSOMATIC MEMORY

Stiegler developed the concept of exosomatic memory as a crucial phase in the evolution of humanity. Exosomatic memory is the attribution of knowledge to objects, such as art or writing, which allows epistemology to be transmitted beyond the individual to subsequent generations of people. Exosomatic memory is the key to the transmission of culture and knowledge, beyond the individual who learns exclusively from personal experience. This places technologies such as writing and art in a key position for the education of culture and knowledge. Stiegler takes these ideas, following Leroi-Gourhan (1945) and Martin Heidegger (1927), from the Palaeolithic to the contemporary. Maori use of natural objects as exosomatic transmission of intergenerational learning exceeds the technological enframing of modernity outlined by Heidegger. Stiegler argues that the impact of cybernetics on knowledge production is accelerating the technological enframing of knowledge. Consequently, information technologies are leaving the human mind behind, in passive receptivity rather than dynamic creativity. The prefrontal cortex is slower than the internet, exacerbating a widening lag in active understanding, in favour of passive absorption. Artificial intelligence and the amplification of algorithms in search engine learning tends to create a 'bubble' of awareness, where your past interests inform the algorithm search results, and reinforce your existing viewpoints. This means that people are less exposed to alternative opinions, and give less time to comprehending or accommodating diverse ways of knowing. In case of entropy the screen produces apathy and passivity that is skewing educational and democratic processes and resulting in avoidance of engaging with the deep risks of climate change and the Anthropocene.

IRWIN, Stacey O.

Millersville University

SINGULARITY IN THE AGE OF MULTISTABILITY

Technological singularity is a term that, in a very simple form, describes the ability of new technology to speed up the rate at which new technology is developed. Shanahan, author of the 2015 text The Technological Singularity, investigates a "range of possible future scenarios" of technological singularity, adding that "even highly unlikely or remote scenarios are sometimes worthy of study (xi)." Uger and Kurubacak, in their 2020 article, "Open Universities in the Future with Technological Singularity Integrated Social Media," make a case for social media's role in, and the proliferation of, technological singularity. With this idea in mind, this paper juxtaposes the technological singularity next to the multistable, to consider the role of social media as an adaptive technology that may potentially fuel technological singularity, through intelligence explosion, augmented reality, and virtual reality, converged into interactive learning hubs.

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IVANOVA, Nevena

Bulgarian Academy of Sciences

AUTOMATING CREATIVITY

Contrary to the conventional understanding of computer science which sees AI creativity as automated mimicry of human-level creativity, the proposed research will question whether the notion of computational creativity points to the emergence of a new form of techno-logos, seen as a shifting epistēmē, un underlying sensibility in the sense advanced by Yuk Hui (2019), which sets the conditions of our existence in relation to the cosmos and which, consequently, demands new syntheses of thought to be produced. In order to understand the principle novelty computation might bring into the world, the project will inquire into the relationship between technicity and creativity drawing on continental philosophy of technology (Bernard Stiegler, Yuk Hui), analytic phenomenology and philosophy of art (Alva Noë), archaeology of creativity (John F. Hoffecker) and methods and theories in AI research. Combining interdisciplinary sources which have never came into dialogue before, this study will aim at producing a conceptual framework that could allow us to reevaluate the mechanistic understanding of computational creativity and liberate the narrow concept of human creativity. It suggests that what we face in our current epoch is a potential paradigm shift in creativity, as well as a new level of complexity in our own aesthetic sensibility whose dimensions we have just begun to envision.

JERÓNIMO, Helena Mateus

ISEG School of Economics and Management, Universidade de Lisboa & Advance/CSG

RISCOPHRENIA AND THE DENIAL OF UNCERTAINTY

This paper proposes a new concept, riscophrenia, to describe the excessive, hegemonic and monolithic tendency to use the probabilistic notion of risk in all types of matters, which artificially camouflages uncertainties and gives an image of control over the random and contingencies. This new concept is based on the notion of "quantophrenia" proposed by Pitirim Sorokin, a sociologist who, in the 1950s, denounced the obsession with quantitative methods in the interpretation of social phenomena. Riscophrenia encourages critical reflection regarding the inflated use of risk, by which contemporary societies operate and are organized, and it consists of two related dimensions, namely: (a) the image of security; and (b) the ratification of the technocratic and technological model. The confidence and image of security, which underlies risk analysis, fit perfectly into a culture of denial of unpredictability and encourages the taking of risks which we would not normally take. It is necessary to problematise this approach by analysing the supposed control of risk and the desire to eliminate chance, in the full knowledge that these attempts are inglorious and produce, in turn, new types of unpredictabilities and uncertainties. Furthermore, the language of risk does not question the fundamentals or the various tendencies which are embedded in the extremely instrumental view that strongly permeates modernity. Indeed, this language not only adapts to the model that produces these problems, but it also legitimises, justifies, and ratifies such models. The paper argues that these elements prevent us from considering that human existence and social life have unpredictable and constitutive uncertainties, and that uncertainty is inescapable. In addition, it defends that there is a need to reflect about the assumptions underlying an appraisal of reality from the point-of-view of risk or uncertainty, and also about what we consequently accept, tolerate, or refuse to do.

JONES, Joe

University of Kent

AGAINST AUTOMATED POST-WORK IMAGINARIES

The imminence of automation is undeniable, and technological imaginaries in which human labour is no longer needed in the world of work are common in both academia and beyond. But whether this automated 'world without work' is dystopian or utopian is a hotly debated issue. For many scholars, the notion of an automated future offers political and economic emancipation, promising an end to injustice and hardship (Brynjolfsson and McAfee, 2014; Bastani, 2018; Danaher, 2019). For others, the same processes threaten to create forced unemployment, rampant boredom, and ontological loss (Carr, 2014; Ford, 2015; Eubanks, 2018).

I will argue that the automated post-work imaginaries posed by both positions are inaccurate, and that the development of automation does not promise the end of work, but rather its alteration (Smith, 2020). The radically different outlooks regarding automation stem from significantly different understandings of the term, and I will draw the focus of discussion back to a central definition of automation in its own right, prior to its imagined uses. I will posit that automation is best understood as a means of saving time. Using this independent definition, I will critique the dystopian and utopian positions, particularly as an inconsistent and incomplete understanding of both automation and work (with a particular view towards private, reproductive labour). Focusing on arguments from Danaher (2019) and Ford (2015), I will suggest why an independent, intrinsic understanding of automation as a means of saving time offers a more applicable and relevant understanding of automation now. I will conclude with some suggestions as to how this definition of automation might present effective avenues for developing the automated technological imaginaries promised by scholars of the utopian position, but without raising the issues detailed in the paper.

JØRGENSEN, Stina

IT University of Copenhagen

Co-authors: Signe Louise YNDIGEGN, Sara Marie ERTNER

VOICE-ENABLED TECHNOLOGIES AND SOCIOTECHNICAL IMAGINARIES OF CARE, AGEING AND THE HOME

Voice-enabled technology has been seen as a breakthrough in eldercare, as practical assistants, and as social companions for older people. While dominant innovation discourses articulate these technologies as means to an end, research based on sociotechnical understandings has shown how technology, ageing and care cannot be seen as separate from each other, but as co-constituted (Peine et al., 2021).

Building on this view, and through a focus on sociotechnical imaginaries we explore how voice-enabled technologies are slowly beginning to transform care, ageing and the home, as they are increasingly pervading public, political and corporate discourses, and put into use in the homes and everyday practices of older people. Sociotechnical imaginaries are, drawing on Jasanoff's definition; "collectively held, publicly performed visions of desirable futures, animated by shared understandings of forms of social life, and social order attainable through, and supportive of, advances in science and technology" (Jasanoff 2015, 19). Sociotechnical imaginaries are at once descriptive of attainable futures and prescriptive of the kinds of futures that ought to be attained.

This paper explores how sociotechnical imaginaries of voice-enabled technologies, ageing and care are being co-constituted in different sites through analyses of documents and visual representations, and ethnographic studies with older people using voice-enabled technologies. We look at big tech companies' imaginaries of ageing and care vis a vis voice-enabled technologies, and explore how such imaginaries are being performed and negotiated in interactions between older people and voice-based technologies.

The paper contributes to the philosophy of technology by giving empirical examples of how concrete voice-enabled technologies take part in forming sociotechnical imaginaries and futures of ageing, care and the home.

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JUCHNIEWICZ, Natalia

University of Warsaw

WHAT IS YOUR BACKGROUND? SELF-TRACKING AND THE IMPACT OF QUANTIFICATION ON THE PERCEPTION OF THE BACKGROUND

The purpose of this paper is to present a (post)phenomenological analysis (Merleau-Ponty 1962; Ihde 2002) of how practices of self-quantification impact the perception of the background in which they take place. The growing popularity of self-tracking devices (such as Fitbits or Apple Watches) has enabled users to track and measure their everyday activity to an unprecedented extent. Although there has been considerable scholarly work focusing on the influence of quantification on users' perception of their bodies and their activity (Lupton 2016; Ruckenstein 2014; Sharon 2017), one dimension, the background, has been omitted in these discussions. In our view, quantification of activity privileges the numerical image of the background and limits users' real-life engagement with the surroundings. The mediated view of users' surroundings might present them with new knowledge (e.g. that their morning run was 5 kilometres long), but it also influences them to view quantified information as more scientific and objective than standard means of perception. We argue that they consequently develop a limited and distorted view of everyday surroundings and treat it in a more instrumental manner – as something that could be represented in a cognitively interesting way only through the medium of technology and as something that is only valuable as a functional part of the processes of quantification. Quantification can also alienate users from the background as they do not build qualitative relations with the environment and disregard the background understood as technological infrastructure. The analysis of these two levels of alienation from the background is, in our opinion, crucial for both the analysis of self-tracking practices and the (mis)perception of the background, as well as for the analysis of the (post)phenomenological background relations.

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JUVSHIK, Tim

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How Blurred is the Line Between Artifacts and Natural Kinds?

It's often thought that natural kinds like electrons, wombats, and gold are determined by a fully mind-independent essence, while artifact kinds like chairs, toothpaste, and cellphones are essentially the result of human intentional creative activity. While humans have long had a strong effect on the natural world, technological developments since the twentieth century have vastly increased human domination over nature with the manufacture of synthetic chemical kinds, genetically modified organisms, and advances in cybernetic and nanotechnology. Many kinds, such as uranium-235, canola, and dredged lakes, seem to blur the common philosophical distinction between technology (or artifacts) and nature. As a result, many philosophers, including Lynne Baker, Muhammad Khalidi, and Richard Grandy, as well as cognitive scientists such as Dan Sperber, have taken such technological advances to show that there's no sharp distinction between artifacts and natural kinds and thus nothing of strong metaphysical significance to be gained by distinguishing between them. In turn, this is sometimes taken to impugn the philosophical importance of the kind artifact. In this paper, I show that we can maintain a principled distinction between artifacts and natural kinds by making some fine-grained modal distinctions between varieties of mind-dependence. I distinguish between accidentally and essentially artifactual kinds: the former may have members which are all artifacts but this isn't necessary, while the latter necessarily only has artifacts as its members. I then argue that all of the cases raised by Baker, Khalidi, Grandy, and Sperber are of accidental artifact kinds. While their tokens are often causally dependent on human intentions, they can occur naturally. Thus, such kinds are only causally but not constitutively mind-dependent. We can maintain a principled distinction between natural kinds and artifacts if we restrict the latter to essentially artifactual kinds and pay attention to the varieties of the mind-dependence relations involved.

KAIL, Orane

École Normale Supérieure

ASIMOV'S ROBOT DREAM (WINNER OF THE GRADUATE STUDENT PAPER AWARD)

Starting his writing career in the 40s, Isaac Asimov stands today as a cornerstone of science-fiction and a founding father for our imaginaries on robots, in fiction and in real life. Robot ethics have been highly influenced by the master's works, and Asimov is often quoted by philosophers who study human-robot relationships or artificial agents' moral framework.

But because of today's self-evidence of his legacy, we may have forgotten how original Asimov's work was for its literary field in the early 20th century. Its originality comes from the deliberate choice of a lesser-known subgenre of science-fiction, that Asimov conceptualized himself as "Robots-as-Pathos" as opposed to "Robots-as-Menace", wanting to drift away from the Frankenstein scenario where men had to fight their own technological creation. Even though this later type of literature was rich in suspense and action, and was highly popular, Asimov criticized its lack of soul and wanted to write stories capable of raising sympathy – and questions. To do so, the whole imaginary around technology in general and robots in particular had to be shifted, for them to change from villainous plot devices to reliable technological agents. Hence Asimov's inventions, the positronic mind and the Three Laws of Robotics, to allow for a new understanding of what robotics may be, and which relationships may occur.

Asimov's robotic imaginary comes from the intricate link between the artistic decision to innovate within the science-fiction field and the scientific desire to shape an ethical technological agent. This work of building a world in which robots and humans may work together is to be analyzed as it is: innovative, creative, and the opening for a philosophical investigation on how much our current technological imaginary owes to this mixture of hard science and fiction.

KANEMITSU, Hidekazu

Kanazawa Institute of Technology

TECHNOLOGICALLY MEDIATED EARTH: TECHNOLOGY AND FOUNDATION OF HUMAN BODY

The relationship between technology and human body is a critical issue in philosophy of technology. In fact, the issue is considered from various perspectives. I will consider how technology defines our body, using postphenomenological framework. In fact, Postphenomenology provide plentiful insights into the influence of technology on human body. As many postphenomenologists point out, technology extends the function of the body: A pair of glasses extends the function of our eyes, and a car extends the function of the foot. Furthermore, extensions can occur at deeper levels of the body, for example the brain machine interface (BMI) extends the function of our brain. In this presentation, I will pick up the example of infrastructure as a starting point, because it also has a great impact on human body. For example, the infrastructure of roads affects logistics and changes our behavior, and as the function of roads changes from a mode of transport for people to one for cars, we can say that the "meaning" of the road to the body has changed—and therefore our bodily sensations have changed. To highlight this phenomenon, I will introduce the concept of "technologically mediated earth" which follows Edmund Husserl's concept of the earth (Erde). How does the earth define our bodies? What effects does it have across generations? I argue that some kind of archeology is needed to answer these questions. We need a "postphenomenological" archeology to uncover the technologically mediated earth rather than a "transcendental" archelogy (Maurice Merleau-Ponty).

KAPLAN, Leah

George Washington University

BENEFITS FOR WHOM? CONSIDERING EQUITY AS A DESIGN GOAL FOR AUTONOMOUS VEHICLE DEVELOPMENT

Many discussions pertaining to the ethical implications of autonomous vehicles (AVs) have focused on individual-level ethical decision-making by algorithms (Goodall 2014; Lin 2015). The potentially dramatic impacts of AVs on transportation systems also raise ethical questions regarding their system-level development and deployment. As a subset of a broad range of ethical reflections, this research focuses on equity as a moral design goal for AV development and deployment.

Current discourse about AV futures tends to focus on a reductive "Heaven or Hell" framing (Creger et al. 2019). The history of transportation technology development in the United States provides numerous examples of uneven distribution of benefits and burdens (e.g., bulldozing many communities for U.S. Interstate Highway System construction) (Bullard et al. 2004). Existing theories of equity and just distribution of goods can provide guidance on how to design a more ethical transportation future (Miller 1992; Rawls 1971). This research draws on such theories to ask: How should transportation planners and scholars think about equity as a design goal for AVs?

In seeking to investigate this question, this paper first situates equity among broader ethical and policy proposals for AVs. It then performs a literature review of how equity measures are involved in current transportation planning practices. Preliminary findings reveal embedded values that prioritize funding for private vehicles over public transit, and suburban-serving over urban-serving transport methods. Further, current transportation planning approaches rely on different equity definitions and metrics (Krapp 2020).

These preliminary findings raise new questions regarding the types of benefits and harms on which transportation planners and policymakers should focus when striving towards equity as an AV design goal. Further, they highlight the need for research regarding potential "policy edge cases" in which optimizing for certain desirable system attributes (e.g., decreased congestion) might come at the expense of system equity.

KARAKAS, Alexandra

Budapest University of Technology and Economics

THE ROLE OF FAULTY ARTEFACTS IN SCIENTIFIC KNOWLEDGE

Phenomena are observed through artefacts: bacteria are examined through microscopes, the human body is inspected by MR machines, stars are explored with telescopes, etc. Thus, in many cases, observation, and hence scientific knowledge, is conveyed through scientific instruments. Consequently, scientific instruments are necessary conditions of some aspects of getting knowledge about the world, and theories are inseparable from the properties of particular tools that were used by scientists. However, in many cases, artefacts can be faulty in many ways, and they can cause distortions, exaggeration, and misinterpretations of phenomena. These errors are occasionally detected at some point of the production of scientific knowledge, but sometimes malfunctional instruments cause subtle modifications that lead to false theory and later to false conclusion.

In this paper, I argue that artifacts do not have only instrumental value, but they play an active role in producing scientific knowledge and they bear knowledge as well. I claim that human-made objects do not only mediate knowledge, but they also modify it at the same time. Building on Davis Baird's Thing Knowledge, the paper discovers through case studies like the Hockney-Falco thesis how unwanted modifications by artefact in observation made a significant impact on theories, and how these effects caused further consequences in certain theories. Furthermore, I claim that the choice of particular instruments over other ones influences the value of the produced scientific theories.

KARASTERGIOU, Anestis

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DATA ETHICS

Undoubtedly, data ethics is a new and relatively controversial field. If the broader scientific mindset is taken into account, the reasons for this controversy seem obvious. To be specific, operating in the fields of Big Data, Machine learning, Deep learning, or generally in many advanced computational fields, has led scientists to believe that biases can be restricted to the structure of algorithms, the operations of neural networks or the interpretations of statisticians. From this point of view, data seem to be neutral and unbiased. It may come as no surprise to many that scientists try to solve real world problems by restructuring an algorithm in order to become as unbiased as possible. However, the main concern of this project is to find out if this way of thinking is actually the right one. Can the restructuring of an algorithm eliminate bias? Is it possible to get rid of biases by making sure that the interpretation of a neural network is unbiased? These questions and many more ultimately rest on our response to the biggest question. Can data be biased? We will explore this question in detail in this project. A short answer, contrary to what many might think, is yes. But it remains to be shown why this is so. What are the nuances of the problem? Is it possible to structure data in a way that eliminates bias? A response to these questions may be much harder than it seems. Thus, in this paper we will explore data ethics related to the collection, accumulation and usage of data. We will show how bias can actually emerge from data processing and we will attempt to open the blackbox of data in weak, according to Searle, AI applications.

KELTNER, Andrew

Global Center for Advanced Studies

TECHNOLOGICAL RELIGIOSITY AND THE DEATH DENIAL

This paper seeks to find attitudes in technology that are in essence religious attitudes that function to deny mortality. From Becker, Solomon, et. al., and Ellul we know that religious attitudes have played almost the fundamental role in society's efforts to push forward the idea of human, collective or individual, progression.

The reason for this study in the philosophy of technology is to form a prescriptivist analysis for existing and emerging technologies that remain unknown. The presupposition is that technology is roughly defined as: 'craftsmanship that is created to better the lifestyle of humanity'. This presupposition maintains the principle of charity, meaning 'bad' technologies are not created from malice, but from ignorance. Thus, technological use and dependence can create an augmented form of reality wherein technology is the 'alpha and omega' of the human condition. These religious beliefs in technology are akin to a newer form of Plato's Allegory of the Cave. Existing examples of this are: political and economic development from western 'technological' countries to 'underdeveloped' countries; space exploration; technological development and war; social media and psychological well being; and transhumanism, to name a few.

Drawing on Ernest Becker's The Denial of Death, Sheldon Solomon, Jeff Greenberg, and Tom Pyszczynski's The Worm at the Core, and the detailed analysis of technology by Jacques Ellul, this paper seeks to reconcile certain features of religious attitude, death denial, and technology.

KEMP, Marissa

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TECHNOLOGIES AND TRADITIONS: ORGANIZATIONAL CULTURE AND MILITARY INNOVATION

Technology and warfare are inextricably linked. From the invention of gunpowder to unmanned platforms, the demands of war have dramatically influenced technological innovation, and innovations have led to new military possibilities and ways of warfare. The ongoing developments in robotics, autonomy, and artificial intelligence have become the latest focus of official military doctrine, congressional reports, and budget requests. These official sources reflect the belief, on behalf of service leadership and the Department of Defense, that integrating these new technologies alongside human combatants will ensure battlefield superiority in the face of peer and near-peer competition. Emphasizing the importance of speed, precision, and risk-reduction, the benefits of, and future roles imagined for, machines are seemingly endless. However, as organizational priorities shift toward creating a future force characterized by networks, swarms, and autonomous systems, they do not adequately consider individual level cultural factors. In this post-phenomenological analysis of human-technology relations in the military, I investigate the undertheorized gap between strategic hopes and tactical realities surrounding new weapons platforms. Drawing on interviews conducted with former and current American service members, I argue that service culture, military values, and identities add nuance to an otherwise flat imaginary, devoid of human agency and the complexities of military experience. Battlefield superiority is thus not achieved exclusively by building or purchasing new platforms. Instead, innovation must be considered holistically, where the use of technologies ought to resonate with existing core values, tropes, and images that service members use to understand and give meaning to their profession.

KERR Eric

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Co-authors: Olivier PERRIQUET & Manon MAËS

TECHNO-IMAGINATIONS: OBJECTIVE VISIONS? (PANEL)

This panel draws on insights from art and philosophy to respond to the idea of objective vision. Vision, seeing, sight, has often been regarded as a privileged form of perception throughout Western philosophy. Kant saw it as the noblest sense (Kant 1978 [1798], p. 45). Arendt alleged that, since Ancient Greece, thinking had been thought of in terms of seeing (Arendt 1978, p. 303). Vision has been perceived as more objective than other senses. In the 20th century, in particular, theorists began to look askance at this supposed hierarchy (Jay 1993). More recently still, technologies have challenged these views again as machines become capable of participating in activities that seem similar to seeing and which produce images, both for human and non-human consumption (Farocki, circa 2000). Biological vision, in our eyes, presupposes selectivity, categorization, and segmentation of a stream of visual stimuli (Von Uexküll, 2010 [1934]). Scientific vision involves isolating an object from its environment in a controlled experiment and making "objective" observations. Technological vision (objects that see) are co-opted into this process and similarly impose selection, categorization, segmentation, and directed attention onto particular elements or phenomena whether driven by artificial intelligence or otherwise. This is reflected in their images which have a framing, are selective, proceed according to a directed attention. There is, consequently, a tension between our representations of technology (images of technology) and how technological images are implemented (technology of the image). Their deciphering calls for technological literacy or a "techno-imagination", a gaze that decodes the meaning of technological images but also a process of opening black-boxed technological artefacts (Flusser, 1980). Understanding an image, in this sense, involves understanding the visual process at work when it is produced. What place might be left for subjectivity and imagination? The panel will involve conversations between visual and new media artists and philosophers of technology.

KHOO, Jing Hwan

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"Is Facebook Listening to Me?": Privacy Invasion as Technological Breakdown

In recent years, there has been a popular conspiracy theory that Facebook secretly listens in on user conversations so that they can display the relevant advertisements. For instance, someone who talks about buying a pair of sneakers when their smartphone is nearby might start noticing ads for sneakers on their Facebook news feed. Though this conspiracy theory is ultimately false—it is highly unlikely that Facebook actually does this—I think that encounters of this sort with our technologies can nevertheless be philosophically significant. Having our privacy invaded feels wrong. There is something discomforting about having ourselves or our information exposed to the eyes of another, even if we have not done anything wrong or illegal. This paper is an attempt to explain why having our privacy invaded feels wrong, and why this phenomenology of privacy invasion is ethically significant. To do so, I focus on moments of privacy invasion when we experience ourselves as the subject of the look of the other, such as the aforementioned experience with Facebook. These are moments of our engagement with technology which I call "privacy breakdowns." By drawing from Heidegger's analysis of breakdown, a privacy breakdown, I argue, is an event that discloses to us our being objectified by surveillance capitalism. By paying attention to this moment, we will come to see the ways in which the logic of surveillance capitalism reduces users to objects. This will further allow for an account of privacy harm centered on objectification, which explains why privacy invasion does not merely feel wrong, but is wrong.

KIM, Jongheon

University of Lille

MISOGYNY AS THE IMAGINARY OF THE INTERNET AND THE MOTIVATING FACTOR OF A COLLECTIVE ACTION: THE AI CHATBOT ILUDA'S CASE

This presentation examines the current status of AI governance in Korea and its implications from the technological imaginary perspective, by analyzing the case of Iruda, a deep-learning-based chatbot service in Korea, defined as a twenty-year-old woman. While the service was launched in December 2020 with a great deal of public attention, only after three weeks, it was terminated because of the suspicious data management, the hate speech of the chatbot, and the sexual harassment toward the chatbot. Currently, the firm is under investigation for the violation of data regulation.

By relying upon document analysis and interviews, I indicate that the aforementioned three topics are related to, even encouraged by AI governance and the toxic masculine culture in Korea. First, while building AI governance, the Korean government has focused on accelerating AI development by deregulation. Second, the IT firms have concentrated on technological development while being indifferent to social implications. Third, the Internet, which is still dominated by young males, continues to function as a space where toxic masculinity is expressed, mostly without consequences. In this context, the developer of Iruda was able to build their chatbot as a young woman while explicitly targeting the young males as their client, leading to the incident.

These findings indicate that the technological imaginary as how we perceive a particular technology and envision the future in relation to the technology is not uniquely concerned with the technology. Rather, the technological imaginaries are the instantiations of the existing social order, which, in turn, reinforce the instantiated order. From this perspective, I argue that the incident was caused not only by the failed regulation but also by the toxic masculinity, widely embedded in Korean society. Then, I conclude that, while a stricter regulation has been considered a solution, it is a political version of solutionism.

KIRKMAN, Robert

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THE ETHICS OF CROSSING THE STREET

The merits of autonomous vehicles are rarely considered from the point of view of pedestrians attempting to cross the street. This is a pity, as a phenomenological elucidation of the pedestrian's plight, in conjunction with insights from the sociology of technology, may reveal much about the ethical texture of different kinds of encounters. Consider a pedestrian who would cross the street in front of a conventional car stopped at an intersection: even if the pedestrian has right of way, it is risky to step in front of a car without first engaging in a quick, nonverbal negotiation with the driver of the car. Such a negotiation is possible only through a reciprocal recognition between two people who have a shared vulnerability in the world, which is in turn based on the perception of other people as people. The situation would be quite different were it an autonomous vehicle stopped at the intersection: regardless of how sophisticated the vehicle's pattern-matching algorithms might be, negotiation based on mutual recognition and shared vulnerability would no longer be possible. If autonomous vehicles were to become dominant in urban areas, streets and sidewalks would necessarily be transformed - morally if not physically - into alien and even hostile places for pedestrians and others who might be moving through the landscape without a car.

KLENK, Michael

TU Delft

MORAL REVOLUTIONS: AN OVERVIEW

In the past decades, a number of philosophers have written on the topic of moral revolutions, distinguishing them from other kinds of society-level moral change. This presentation surveys these recent accounts of moral revolutions. From these accounts, we extract a number of dimensions one can use to distinguish importantly different types of normative change; among the dimensions we discuss are depth, novelty, disruptiveness, conceptual innovation, and the degree to which the new view is institutionalized. Since some authors incorporate particular causes of moral change into their definitions of moral revolution, we also characterize the factors that have been proposed to cause moral revolutions, including economic conditions, ideas, anomalies in existing moral codes, and individuals or groups of particular social standing. Using the resulting set of dimensions of change and causal factors, we map what the accounts of moral revolutions have in common and how they differ, and how moral revolutions have been distinguished from other kinds of moral change, such as drift and reform. We then identify some types of society-level moral change that have attracted little interest in the literature thus far but that warrant further research.

KNOSALA, Bartlomiej

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DISCOURSES AROUND THE INDUSTRY 4.0

The main assumption behind this paper is that the one of major driving forces of civilizations are intersubjective nets of meanings embodied in narratives (G. Vico, E. Cassirer, Y.N. Harari) . In terms of technology, this means that stories about the future have a significant influence on the shape of future technologies. It is that because assignment of meaning to new science and technology can “heavily influence public debates and can possibly be crucial to public perception and attitudes by highlighting either chances or risks" (Gunwald 2016:4). The aim of this paper is to analyze narratives concerning Industry 4.0 and to check the assumptions behind these narratives. The main questions to the discourses around the Industry 4.0 are:

- what relation between culture and technology are assumed in specific discourse?

- is specific discourse technoptimistic or technofobic?

- whether a specific discourse promotes passivity or puts our collective actions in the center of attention. In other words is specific disourse deterministic or it is showing a technological future as dependent on political activities?

- to what extent are technological solutions presented as problem-free values?

- whether technology is presented as a solution to problems (technosolutionism)?

- whether a specific discourse implies the need for social control of technology?

- from whose perspective is the development of industry 4.0 described - from the perspective of business or society?

The result of the analyzes will be the distinction of the main narratives about industry 4.0

KORENHOF, Paulan

Wageningen University

Co-authors: Vincent BLOK, Sanneke KLOPPENBURG

PHANTOM OF THE DIGITAL TWIN: A CRITICAL INQUIRY INTO THE NORMATIVE ASSUMPTIONS IN 'DIGITAL TWIN' CONCEPTUALISATIONS

Digital twins are conceptualised as real-time realistic virtual versions of physical entities. Originating from product engineering, the digital twin quickly advanced into other fields, like life sciences, environmental sciences, and even Earth systems sciences. The use of digital twins is seen by the tech sector as the new promise for efficiency and optimisation, while governmental agencies see it as a fruitful means for addressing the grand challenge of climate change. To date, however, philosophical reflection on the nature of Digital Twins, the self-evident assumptions behind their conceptualisation and critical reflection on the feasibility of their ambitions is lacking, let alone on their normative implications.

In this paper, we propose to take a first step in this effort by exploring the underlying normative assumptions in dominant digital twin conceptualisations and critically reflect on these. We will open up the black box and identify questionable assumptions on the level of objectivity, transparency, knowledge, agency, and innovation. We will show that the digital twin conceptualisations are haunted by conceptual ambiguities that sustain a phantom objectivity. It will turn out that a digital twin is not a 'realistic virtual version', but instead, a process of translation and intervention fueled by often unarticulated worldviews. A key role here is played by a set of different datafied representations that all have their own normative relation to the twin's object. Based on our findings, we propose a research agenda for more critical reflection on these ambiguities and to develop a more critical conceptualisation that also has emancipatory potential.

KORZYBSKA, Helma

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LEARNING THROUGH COCHLEAR AND RETINA IMPLANTS: EMBODIMENT AND REDEFINING PERCEPTION

As prosthetics are increasingly offered as solutions to various deficiencies, from insulin-releasing implants to limb prostheses, the success of these rapidly developing technologies is not always clear to evaluate, as it is found to be not only subjective but also profoundly situational. With technologies made to compensate a sensory ability, dealing with sensations and perception also adds some level of obscurity to the question of what is really being produced. Having this in mind, how can we understand embodiment of cochlear and retina implants?

Through ethnographic observation, we found that for people having lost vision or hearing during adulthood, there is always a certain conflict between the sensory capacity they expected to retrieve and the sensations produced by the device. In these situations of sensory learning, sensations are constantly being redefined, as is the very idea of what hearing or seeing is. In this presentation we will see how the negotiation of different concepts of perception appears as the stage for processes of embodiment of sensory implants.

KOUR, Rasleen

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POSTPHENOMENOLOGY AND THE INTERWOVEN CHARACTER OF TECHNOLOGY AND CULTURE: A CASE STUDY OF LAOTIAN CULTURE

Technology and culture are inextricably interwoven, as humans are always embedded in material cultures, which influences their perceptions and experiences over time (Ihde, 1990& Verbeek, 2005). The two dominant viewpoints that failed to recognize the interdependence between technology and culture, and are chastised by postphenomenological thinkers are instrumentalism and substantivism (Borgmann, 2004). Technology according to instrumentalists (Jasper, 1957) is a neutral means and a mere tool to acquire certain goals. On the other hand, substantivists argue that technology is autonomous and possesses a certain power that alters cultures. Ihde (1993) coalesces these two ideas, claiming that technology is non-neutral (multistable) and disruptive (technological intentionality) since it has the ability to amplify or magnify our information. He coined the term 'Cultural Intentionality' to show how technology influences cultures and how the same artifact can have different meanings in different cultures, hence, it is pluriculture in nature. Other philosophers who explore the interdependence of technology and culture are Winner (1980), Latour (1994), Hasse (2008), Sato & Chen (2008), and Smits (2001).

Primarily, the paper investigates practical implications of the inter-relational concepts of culture and technology by scrutinizing Laotian ways of life as a case study. Laos, a heavily bombed nation, uses wartime scrap to make boats and other daily accessories (Baxter, 2009). This shows that cultural variability is a desideratum rather than a choice. The missile-like boats used by Thabak residents point clearly to the shift in the culture of seeing missiles-as-disastrous to missiles-as-savers, therefore, demonstrating the concept of multistability. Article 22 team encourages artisans to make "Peacebombjewellery" to feed their families, therefore, promoting art and craft culture. This illustrates how technologies can change the entire gamut of one's cultural lifeworld, along with unique modes of perceptions, food habits, art form, and values associated with them. Through these examples, the paper investigates the conditions under which novel human-technology relations are created.

KRANC, Stan

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INDICATING PERFORMANCE

In 1796, John Southern invented an instrument to monitor the performance of Watt's steam engines. This device automatically plotted a diagram displaying the variation of cylinder pressure with piston position during the mechanical cycle of the mechanism. Records collected from many such trials eventually resulted in a catalog of performance observations—templates against which the diagram obtained for any particular engine could be compared, in order to diagnose operational conditions. Thus, the aptly named indicator diagram, not only "points" to possible faults but also towards corrective actions to improve performance. Remarkably, this important technology was in wide use prior to the articulation of thermodynamic theory and, in fact, was critically important to that subsequent development. Today, indicator diagrams provide performance information for many types of reciprocating engines.

This paper focuses on a pre-theoretic understanding regarding Southern's innovation, comprising two aspects of technological mediation as elaborated in postphenomenology (Ihde/Verbeek): specifically, the hermeneutics of instrumental perception (reading the diagram) coupled with pragmatic actions for change (human agency), directed at a goal of optimal operational efficiency and output (technological intentionality).

The production and interpretation of the cycle diagram itself, however, is much more complex than simple instrumental acquisition of intensive properties such as pressure or temperature. Accordingly, in this analysis several relevant questions are addressed. For instance, how does the diachronic narrative of a record differ from synchronic, or "real time" observation? How is epistemic value derived in the co-operative processes of perception and action? Other examples of indicating functions are considered.

KRYSZTOFORSKA, Magdalena

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A Fiction View of Machine Learning Models

In the current era of planetary-scale computation the perennial pursuit to identify patterns in data is being largely outsourced to machines. The field of machine learning continues to make rapid progress in producing sophisticated systems, which, combined with increasing computing power, have substantially augmented their capacity for processing large datasets and recognising patterns. These then serve to make predictions about future inputs and generate new data. Nevertheless, despite the advent of big data, which lead to greater availability and bigger sizes of datasets, the volume of data in any given dataset is still finite. Moreover, further issues with datasets, including noise or incomplete values, mean that looking for patterns in data always involves a degree of approximation. Similarly, one of the central concepts in machine learning, the model, is a mathematical approximation of the learning outcome, and can be understood as a story told about the data, rather than their direct representation.

The discussion of models as approximations, idealisations, and abstractions can already be found in the philosophy of science in relation to scientific models. In this paper I will draw on some of the insights from those debates in order to think about the representational limitations of data-driven pattern recognition and prediction. My particular focus is on what has become known in the philosophy of science as 'the fiction view of models', and its potential value for understanding some of the challenges in machine learning.

Referring predominantly to the most recent approaches to the issue of fiction in scientific models, developed by Roman Frigg and James Nguyen (2016 & 2020), Fiora Salis (2019), and Michael Weisberg (2013), this paper will propose an analysis of the relationship between machine learning models and fiction.

KRZANOWSKI, Roman

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Co-author: Pawel POLAK

THE FUTURE OF AI: STANISLAW LEM'S VISIONS FOR CYBER-SOCIETIES AND HUMANITY

Despite its rational and mathematical foundations, AI represents a big unknown for the future of humanity. AI researchers pay only marginal attention to the potential impact AI technology on society. The technologists never realize what they are creating, much like in the tale of the sorcerer's apprentice. They never realize that behind the design there is a sphere of unpredictability; the more complex the technology is, the more opaque the sphere becomes. We are still at the beginnings of AI revolution, and we simply do not know what may be coming. The case of AI technology and its impact of humanity is not a known known or even a known unknown but rather an unknown unknown. So, how do we lift this veil and get a glimpse of a future landscape with an AI-permeated society? One way to anticipate what may be coming is to look at the images of the future found in the visionary writings of some sci-fi writers. In this study, we explore Stanislaw Lem's visions of a robotic and AI society. We explore Lem's prose to see what challenges our technological societies may face when we entrust our lives to AI technology; what questions we should ask and what questions we forget to ask when developing AI systems and allow these systems to control our lives; and what problems we may face, many of which we may not think about yet, being blinded by the illusory magic of technology and our typical shortsightedness.

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TOWARDS IDIODIVERSITY. RETRANSLATING CYBERNETICS

This paper discusses translation as a technique of doing philosophy and introduces the concept of idiodiversity as an alternative to the current model of automated translation machines. The dominant functionalist approach to technology has made these machines the agents of linguistic homogenisation, which constitutes a threat for the diversity of languages (idiomatic open systems) this paper advocates for. However, the challenge is not merely to accuse automated translation technologies of impoverishing the knowledge of how to translate but, rather, to determine whether these technologies can be reappropriated for the purpose of preservation and revalorisation of translation and, more generally, as a conveyor of noodiversity. This challenge also involves the need to draw attention to the political significance of translation practices and to elaborate an alternative to the mechanistic approaches to translation, typical of computational linguistics and language engineering, through a heterodox approach to cybernetics. In order to accept this challenge, I will revisit Gilbert Simondon's concept of transduction as a key concept in his theory of general allagmatics to show how general allagmatics, a key notion for what Simondon calls universal cybernetics, can serve as a starting point for the task of retranslating cybernetics and can offer a new opening for philosophical thinking.

KUDINA, Olya

TU Delft

Co-author: Esther KEYMOLEN

MIRROR, MIRROR ON THE WALL: UNDERSTANDING THE DYNAMICS OF TRUST, TRUTH AND SELF IN THE AGE OF DEEPFAKE MEDIA

Recent years have seen a rise in the use of deepfake media, whereby Deep Learning algorithms help to superimpose a face of one's choice onto specific images and videos. This has raised a lot of ethical concerns, e.g. obtaining a person's consent before using their face in the porn industry or for another purpose they might not be aware of or the contribution of doctored media to the rise of fake news. We analyze the phenomenon of AI-doctored media from the perspective of postphenomenology, focusing on the relational aspects of technological use. While there are many areas of deepfake application, we identify pornography and entertainment as the two most thriving ones currently. Against this background, we explore how the concepts of trust, truth and self take different shape within the identified practices, owing to specific human-technology-world dynamics. Particularly, the way in which deepfakes mediate the world warrants our attention. Seemingly they provide us with access to a part of the world, while they are actually creating a new world. This is fundamentally different from other reality-altering mediations such as movies or novels where we are aware of this specific mediating quality. In our 'occularcentric' society, the obscured mediating qualities of deepfakes can have far-reaching consequences for how we develop trust, in ourselves, others, and the world around us. Based on this analysis, we make some suggestions towards a responsible design of AI-altered media. Provided that certain conditions are observed, the use of deepfake media is not as straightforwardly condemning as one might be inclined to think. Postphenomenology can help to understand better a complex sociotechnical nature of deepfake media and promote an informed decision-making in this regard.

KURZ, Annie

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OFFLINE UNPLUGGED DISCONNECTED ...

How do we relate to technologies when absent, turned off, not in use? How to

think of mediation of disconnection? Apps that are designed to keep us away from

apps such as Freedom (2011), AppDetox (2013) or NetBlocker (2019) promise to give ‘off time’, they also mark a paradigm shift within public attitude towards technologies. Even when dystopian panic and utopian hysteria are put aside, there is a nostalgia towards the analogue. Conditions of 'offline, unplugged, disconnected' have become an almost trendy desire of a temporarily Internet - free being. The quantitative qualities of being with the virtual OR the natural body can be felt and observed within every-day decisions of where to be or not to be. We have come to understand our technological gadgets as more than tools or objects to be studied separated from us. We acknowledge their relational character. Well known American philosopher of technology Don Ihde’s concept of Postphenomenology offers a systematic approach to decode human – technology – world relations. He emphasizes the plurality of technologies and technics as well as their non-neutral nature. Functionalities are multi-stable and cannot be fully anticipated within the design process. Ihde’s equations open up methods especially useful for designers and increasingly fruitful amongst artists. How can the

phenomenon of the absence of technology be conceptualized within Postphenomenology? Can it be put under the lens of historical variations? Consciousness of a technology is enough to alter the lifeworld - that is not whole until disconnection becomes part of it. With speculative artistic methodologies I aim to coin down the terminology ‘absence-relation’ to describe these phenomena. Beginning with the case study of 'apps against apps' this paper aims to show that absence of technology poses important questions within philosophy of technology.

LACOUR, Philippe

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ARTIFICIAL INTELLIGENCE AND THE PROBLEM OF THE SINGULAR: THE LIMITS OF THE CALCULUS OF MEANING IN THE CASE OF TRANSLATION TECHNOLOGIES.

The persistent difficulties encountered by translation technologies, even in their recent form (neural, deep learning), in their approach to the singular (style, "vivid" metaphor, semantic innovation) is enlightening (Bénel et al. 2010, 2011). Starting from the four logical possibilities of translation, I will show that the vast majority of current solutions, no matter how sophisticated, are based on the postulates of Automatic Language Processing. However, the latter, because of its orientation towards rules, turns its back on singularities, which it confuses with the particular cases of abstract categories. It is thus an unsuitable framework of thought that is chosen (Universal<-Particular), correlative of a questionable preference given to automation in the man-machine relations, and to a computational semantics. But if we identify a different framework of analysis (General->Singular), which takes into account the originality of the singular and its unsurpassable link to a specific context, and if we legitimize its epistemological value (Lacour 2012 and 2020), we then make sense of the rich diversity of man-machine interactions (full delegation being in reality only its basic degree), while underlining the fruitfulness of a semiotic, more interpretive, approach (Bénel 2020). This opens up the field of Augmented Collective Intelligence, which is much broader and more promising than the one usually designated by the term "Artificial Intelligence", and which can be illustrated by specific cases (Desjardin et al., 2020), notably concerning the uses of the TraduXio environment, for collaborative and multilingual translation (http://traduxio.org). The critical analysis of translation technologies thus encourages a return to a conception of AI that is less substitutive than comprehensive, in the sense that it is not about simulating or replacing human intelligence but humbly trying to better understand it (Bénel 2020).

LAVELLE, Sylvain

ICAM Paris

ETHICS OF / IN TECHNOLOGY: PROCESSES, PROCEDURES AND CONTEXTS, FROM AI TO NANOS (PANEL)

It is now accepted that technology is not neutral and that it can even pose serious ethical questions in its development process, from design to production and use. This is a point that has appeared in history with some evidence in the field of gene or atom techniques, and it is not denied at the present time by the rise of new techniques, from AI to Nanos. Technological processes cannot be reduced to a set of facts, they are bearers of values and norms and they turn out to have certain moral and social impacts. In addition, it no longer seems possible to confine them within a community of experts and specialists and it is important to open up critical reflection and discussion to communities of users, novices and citizens. This consideration for other rationalities and other actors raises the whole question of the procedures of debate and decision that the stakeholders are to respect. It leads to questioning within the dynamics of research and innovation, in the switch from an epistemic perspective to an ethical perspective, the impact on the method of inquiry. Then, it is important to pose the ethical question in the technology itself by scrutinizing in Artificial Intelligence how the social rules and choices are translated into algorithmic learning procedures and can produce bias. In the same field of AI, ethical thinking is often focused on questions of principle, when it should pay more attention to contexts and relationships and incorporate contributions from the humanities and social sciences. In the neighbouring field of neurotechnologies, one can consider the impact on questions of human identity, ethics, and societal values and explore the content and the scope of some ethics guidelines. Finally, the field of nanotechnologies reveals a duality of technology ethics, split up in an approach centered on possible uses and applications and on an approach centered on the underlying societal projects. The proposed panel on ethics and technology includes contributions from authors belonging to the H2020 projects SIENNA, TECHETHOS and NANOFABNET.

LAVELLE, Sylvain

ICAM Paris - Centre for Ethics, Technology and Society (CETS) - EHESS Paris (GSPR)

DYNAMICS OF RESEARCH AND INNOVATION – FROM EPISTEMIC TO ETHICAL PERSPECTIVES: THE CHALLENGE OF THE METHOD OF INQUIRY.

Several models of the dynamics of research and innovation have been pushed forward in view of articulating epistemic, ethical and political perspectives: research mode 1 and mode 2, double-triple-quadruple helix of innovation, open, cooperative and responsible research and innovation. It can be shown after presenting their main options and limits that they share a common blind spot, namely the question of the impacts on the methodology of inquiry. In a poly-critical model, as opposed to a mono-critical one, an important challenge of the dynamics of research and innovation is to achieve a 'common-complex-plural' inquiry. This kind of multi-rational and multi-dimensional process requires to lead scientific inquiries together with moral and social inquiries and to cooperate among groups of experts, novices and citizens. However, the poly-critical approach to inquiry in the dynamics of research and innovation has some consequences on the standards of the methodology that question its degree of possible variation, adaptation and coherence.

LECHTERMAN, Theodore

University of Oxford

THE CONCEPT OF ACCOUNTABILITY IN AI ETHICS AND GOVERNANCE

Debate over accountability has been stymied by disagreement about the meaning of the term. Many participants use “accountability” as a general synonym for normative desirability, while others use it in more narrow, technical senses, sometimes akin to traceability. This paper begins by disambiguating the many senses and dimensions of “accountability,” distinguishing it from neighboring concepts, and identifying sources of confusion. It holds that accountability can be understood as a virtue, a social practice, and a mechanism. Practices of accountability often contain multiple and overlapping relationships of accountability, which may not always be explicit. Implicit disagreement over the relevant standards and audience of accountability further contaminates the discourse. The chapter continues by responding to the common claim that AI results in an “accountability gap.” It does so by analyzing several sources of accountability loopholes, such as lack of human control, opacity and inscrutability, the problem of “many hands,” immature regulatory standards, and persistent disagreement about ethical principles. It evaluates various proposals for closing this gap, including moratoria, legislative approaches, transparency and explainability requirements, and an engineering duty of care. It also explores how AI can moderate the accountability of conventional entities, such as individuals and states, by facilitating greater accountability in some cases and undermining it in others. The chapter concludes that the role of accountability in AI ethics and governance is vital but also more limited than some suggest. Basic accountability norms can be helpful in the absence of agreement about substantive principles for AI regulation. But accountability will remain a weak tool without further progress on identifying these principles.

LEHTINEN, Sanna

Aalto University

THE ROLE OF TECHNOLOGICAL MEDIATION IN URBAN EVERYDAY AESTHETICS

Technology in one form or another has always been a part of the urban lifeworld. The development and use of different types of technologies have traditionally been dictated by the practical needs of the community. However, they have also a significant impact on how a city looks and feels. Some technologies have a clear perceivable presence, whereas others are more invisibly embedded into the material structures of the city. The presence of a wide array of technologies becomes explicit through the everyday engagement with the city that is grounded in everyday habits and preferences. The paper draws attention to the contemporary urban aesthetic experience that consists of a merging of technology, the everyday, and the city. The idea is to present some key aspects of how the aesthetic features of cities manifest through and in relation to technologies and their everyday presence in particular. The paper bridges recent developments in philosophical and applied urban everyday aesthetics and the postphenomenological approach in the philosophy of technology. Facets of cognitive and non-cognitive approaches in environmental aesthetics are employed to study the implications of human-technology relations in the urban sphere. Central concepts include aesthetic value, engagement, and the experience of the familiar. The paper presents urban mobility as an example of how technology can be studied through the framework of urban aesthetics. As the case of mobility also makes clear, urban futures are imagined already in the everyday practices of today.

LEMMENS, Pieter

Radboud University, Instiute for Science in Society

FROM GEOCIDE TO GEOCARE. DE-NATURALIZING AND RE-NOETICIZING THE TECHNOSPHERE

One of the more interesting concepts that have emerged within the debate on the Anthropocene is that of the technosphere, an attempt to think technology as a planetary phenomenon, decisive for its future as a life support system. Mainstream philosophy of technology so far has hardly taken notice of this powerful and fertile concept. Having abandoned interest in 'large scale' and 'high altitude' conceptualizations of technology since the so-called 'empirical turn', it has failed to address the profound planetary impact of technology and engage with the technosphere concept. Starting from the assumption that the technosphere represents the concretion of what Heidegger called enframing, I will offer a Stieglerian critique of the naturalist of not physicalist technosphere concept in Earth system science by showing that it does not understand, somewhat surprisingly, the proper nature and implications of the human-technology relationship as it is constitutive of the technosphere. Consequently it fails to properly address what is truly specific about this artificial geosphere, and that is its 'noetic' as well as its 'libidinal' character. The latter constitutes what Clive Hamilton calls humanity's 'world-making' capacity, which seems to be collapsing in the Anthropocene, indeed together with the collapse of 'nature'. It is only by focusing on the Earth-systemic impact and specificity of precisely these noetic and libidinal dimensions of the technosphere or rather techno-noosphere that we can properly start to think about how to reconstruct it from a destructive and careless into a constructive and caring constituent of the anthropized Earth system, as I will try to show with Stiegler and in dialogue with the so-called 'gradient theory' of Schneider & Sagan.

LENAY, Charles

Université de Technologie de Compiègne

DARWIN AND SEXUAL SELECTION: BETWEEN THE ARTIFICIAL AND THE NATURAL

To conceive and defend his new theory, Darwin feared being accused of introducing an intentional technical model to explain the natural phenomena of evolution. To counter this criticism, he did not seek to deny that his idea of natural selection was modelled on the artificial selection of breeders and horticulturists. His approach was rather that of naturalizing the artificial selection itself. In this way, he devoted more than half of his work on the origin of man (The Descent of Man) to secondary sexual characteristics in the animal kingdom. Indeed, in order to explain these characters which have no adaptive value, one must imagine sexual selection. In the case of birds, it would be the females who, according to their "taste", select the males. It is then necessary to show that this taste itself is a natural phenomenon engaged in an evolutionary process of transformations and differentiations. Always following his analogical method, Darwin sought in the movements of fashion the model of these evolutions of taste in the animal world. The hereditary variations of the characteristics of the males, selected according to the tastes shared by the females, could by certain variations give rise to new tastes, i.e. new selection criteria which would also be hereditary.

This form of naturalization of aesthetic judgment makes it possible to think of evolutionary mechanisms based entirely on interindividual perceptive interactions, and not on individual advantage in the struggle for existence.

LEWIS, Richard

Catholic University of Lille & Prescott College

A Posthuman Approach to Situating Technological Relations

Before we are able to effectively evaluate a technology critically, we should have a very good understanding of not only the co-constituting technological relations involved, but also how those relations are situated within a complexity of interrelating sociocultural, temporal, spatial, mind, and body relations. To accomplish this, I created a posthuman approach consisting of a theoretical framework and practical instrument (Lewis, 2021) based on my own autoethnographic experience. The posthuman approach builds upon the embodied relation described by postphenomenology, as well as Ihde's comment that, "Technologies transform our experience of the world and our perceptions and interpretations of our world, and we in turn become transformed in this process. Transformations are non-neutral" (Ihde, 2009, p. 44). Leveraging the idea that "transformations are non-neutral" gives us an ability to expand the embodied relation. All of the transformations that occur through any of our many relations are embodied within us and can allow us to better understand the interrelating complexity that occurs with any "single" human-technology relation. I then evaluated its effectiveness by performing a usability study consisting of a small group of master's students who engaged with a specific innovative technology and analyzed their engagement through the posthuman approach. Their experience using this method was evaluated by both them and myself as to its effectiveness in preparing the students to be able to critically analyze the specific technological relation they engaged with. This led to improvements in both the instrument and assignment.

LEY, Madelaine

TU Delft

ARE WE READY FOR RETAIL ROBOTS? CLASHING TEMPORALITIES AND COLLABORATIVE TECHNOLOGY INTEGRATION

The following paper conceptualizes the current state of retail robotics as a clash of temporalities, where a more robotic future is forced into a present that is not yet ready. Europe and the United States are increasingly investing in, developing, and/or using robotics, and it will soon become commonplace to shop alongside robots in stores and work alongside them in distribution centres (Xiao & Fan, 2020). Retail companies' and robot developers' press releases envision harmonious human-robot interaction that will alleviate burdens of repetitive labour, but a different story emerges in the news as workers and customers talk about their interactions with the robots. Employees in Amazon distribution centres refer to their work alongside robots as a "cyborg job" and compare themselves to the machines (Guendelsberger, 2019) and customers debate online about whether or not Stop & Shop's storefront robot, Marty, is "creepy" or even useful at all (Gallucci, 2019). The disconnect between companies' or developers' visions and people's current experience reveals a bumpy transition period where the present and the future meet with tension.

With references to stakeholder interviews from industry and examples in the media, I examine moments where robots were introduced into retail spaces and rejected, pinpointing where the workers, the technology, and the physical space were not yet ready to work together. I argue that readiness can be achieved through force or through collaboration, and that the latter is pivotal to protecting workers' wellbeing and dignity.

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LI, Shuhong

TU Delft

BEYOND INDIVIDUALISTIC CONCEPTIONS OF AUTONOMY IN VALUE SENSITIVE DESIGN (VSD): A CASE STUDY IN ELDERLY CARE IN CHINA

This paper aims to promote an understanding of autonomy beyond western-centric value design and calls for user-centered robot design varying in the cultural and social contexts. Autonomy is one of the prevailing values discussed in value sensitive design in elderly care through care robots. However, an empirical study conducted in China shows the main contemporary approaches cannot explain the current situation in elderly care in China. Attention to Confucian ethics is proposed as an alternative way to advance the understanding of the connotation of autonomy in elderly care in the Chinese context. One of the main reasons is that the Confucian filial duty to taking care of elderly people is deeply rooted in Chinese culture and society. Another practical reason is that this perspective can illustrate the actual needs for elderly care and prospectively provide some insights in potential issues in elderly care through robots in China. Also, it sheds light on western-centric values by adding a normative angle of value sensitive design as a complement. In major European and north American cultures, the conception of autonomy emphasizes individualism and self-determination while in the Chinese context, the emphasis is on family-determination and social relations. This paper proposes a philosophical comparative analysis of the concept of autonomy and bridges the gap between different connotations of autonomy in value sensitive design approach and the Confucian perspective in the elderly care context in different cultures. Following the value hierarchy introduced by Ibo van de Poel, the value of autonomy is specified to norms and design requirements in robot design in the Chinese context.

LIBERATI, Nicola

Shanghai Jiao Tong University

POSTPHENOMENOLOGY, SMART TEXTILES, AND SOLARPUNK. HOW TO SHED A RAY OF LIGHT ON A DIGITAL FUTURE.

This presentation aims to provide a different approach to the use of smart textiles building upon postphenomenology and solarpunk.

We are living in a digitally embedded world. Digital technologies are intertwined with our everyday activities, and now they start to be enmeshed even in our clothes thanks to smart textiles. Through digital interfaces, these textiles can change color, shape, and position according to the user's mood in real-time, and fashion is starting to use such digital technologies in order to develop new products.

As postphenomenology suggests, since technology is not neutral, we will face changes in the meanings and the values related to fashion, but it is not clear what these changes are. At the same time, the narrative provided by scientific literature tends to highlight how these technologies might threaten our way of living and to focus on the possible risk of the changes produced. For example, the clothes that can show how the person feels by changing colors according to the user's mood can be perceived as threatening the privateness of the subject's emotional life with obvious repercussions on the power relations binding subjects and the companies dealing with such intimate data.

This presentation wants to provide a different approach by using the postphenomenological framework to analyze the changes and the solarpunk in science fiction to introduce new narratives and imaginaries which are open to technological changes while keeping a critical perspective.

LIM, Arnold

Zhejiang University

'TOWARD A GLOBAL SOCIAL CONTRACT FOR TRADE' A RAWLSIAN APPROACH TO BLOCKCHAIN SYSTEMS DESIGN AND RESPONSIBLE TRADE FACILITATION IN THE NEW BRETTON WOODS ERA

Imminent changes to the international monetary system alongside an evolutionary shift toward more egalitarian principles of justice in commercial contracts for trade are now taking place. Such changes however do not sufficiently account for circumstances of hardship, or black-swan events such as Covid-19, whereby the relative losers of trading arrangements should continue to receive outcomes which are not only efficient, but also fair and resilient. This contemporary analysis of trade practice stems from older theoretical arguments found in the Enlightenment tradition of 'Social Contract', and in John Rawls' 'A Theory of Justice' (1971), applied more recently as an ethical foundation for international trade by James (2012), and crucially also, in regard to the innovative blockchain technologies which support trade facilitation (Reijers 2016). In developing responsible blockchain systems for trade, two solutions are here considered: First, targeting blockchain's protocol layer, in designing rules for consensus which attempt at guaranteeing minimum relative payoffs for vulnerable parties; and secondly, in following Derek Leben's discussion of a 'Rawlsian Algorithm' (2017), internalizing principles of justice at the application layer of smart contract development. Hence while Rawls and James adopt an 'international' conceptualization of social contract, we propose a 'Global Social Contract for Trade' which acknowledges the future of trade facilitation as a decentralized and pluralistic eco-system of blockchain smart contracts all locally optimized. Focusing not only on the finished product of new technologies, but crucially on the design process itself, these debates are finally situated within the emergence of 'Responsible Innovation' (RI) as a useful set of approaches for internalizing the problems of social cost associated with trade externalities.

LINDBERG, Ylva

Jönköping University, School of Education and Communication, Sweden.

Co-author: Teresa CERRATTO-PARGMAN

THE UNBEARABLE LIGHTNESS OF IMAGINATION. SPECULATIVE FUTURES IN EDUCATION

This study is motivated by the absence of professional agency that has been observable in teachers' changing practices pre-, present, and post-COVID19 (Haglind & Lindberg, forthcoming), and targets educational imaginaries, that could procure agency to teachers in current digital transformations. Social imaginaries have been widely used as both a theory and a method to observe human capacity to bring new forms of being and doing into life through the power of thought and formulation (Chassay 2010; Jasanoff & Kim 2015; Jodelet 1989). The faculty of imagining is marked, on the one hand, by continuous and undetermined creativity, on the other hand, by limitations that history, culture, and social structures force upon humans (Castoriadis & Ricoeur 2016. Leblanc 1994).

To shed light on how teachers' professional agency can be empowered in times of uncertainties and social-technological change, we have collected qualitative answers from both teachers and students in three separate data sets:

1. An international survey study of teachers' and students' in higher educational settings

2. Fifty-two narratives by upper secondary school teachers

3. National survey by upper secondary students

Parts of these data sets' answers are future-oriented, pointing to how teachers and students imagine tomorrow's educational reality. This information is analyzed in the study as categories of seeds of what "could be" if seriously considered and brought into the light, according to Kozubaev et al. (2020).

These crossed data sets' findings confront researchers in education with a dilemma that we intend to raise for discussion. The answers are marked by conditions of what is "sayable" and "thinkable" in everyday life of constraints and restrictions. Significantly, the power of teachers' imagination seems constrained by sedimented layers of past and present while education needs teachers with visions

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LO, Felix Tun-Han

Simon Fraser University

TECHNOLOGICAL IMAGINARY AND THE AMBIVALENCE OF TECHNICAL POLITICS

This paper explores the political potential of technological imaginary by examining the history of computing with Gilbert Simondon's philosophy. One well-accepted discourse about the history of computing alludes to the demand for mass information processing in the US military and businesses. The early development of computing was presumably shaped by this politico-economic context, but its actual historical development took a detour from this linear projection of calculating machines as mechanical slaves. As evident in Pamela McCorduck's interviews with prominent pioneers of artificial intelligence, funding proposals insulated researchers' true objectives, as science fiction novels played a major role in shaping their conceptualization of artificial intelligence, robotics, and human augmentation. It was the technological imaginary of futuristic visions, not the agenda stipulated by funding agencies, that inspired technical innovations. This historical interpretation agrees with Andrew Feenberg on the ambivalence of technical politics. But instead of ambivalence as the dialectics between the elite and the social movement of resistance, an open environment that encourages researchers to freely explore their technological imaginaries could be just as important as social movements at disrupting the insatiable accumulation of power by the elite. This paper contends that Simondon's concepts of concretization and metastability, his critique of the slavery form of human-technology relation, along with his distinction between true inventions and incremental improvements, are better equipped at characterizing this ambivalence of technical politics than Marxist dialectics. The metastability of an open environment allows the transduction of technical inventions as impetus to metamorphosis in the surrounding milieu. Appropriating this argument to the age of surveillance capitalism, the paper draws parallel between the big data trend and the conspicuous demand for mass information processing in the 1950s. It contends that innovations in artificial intelligence research may actually result in disruptive technology that indirectly destabilizes the hegemony of big data surveillance.

LOBET-MARIS, Claire

University of Namur

EXPLORING BIOHACKERS IMAGINARIES : BETWEEN NARRATIVES AND PRACTICES (PANEL)

This panel aims to explore a social phenomenon called “biohacking”. Different visions of the phenomenon coexist: Ali Yetissen (2018) refers to biohacking as “a do-it yourself citizen science merging body modification with technology”. For Salomé Bour (2019) “body hackers improve the body by using new technologies to introduce new capacities, new potentialities. For them, the body is "obsolete", which means that it should no longer remain as it is today”. But the term biohacker is not necessarily used and recognized by its own members. According Delfanti (2012) “(…) some individuals linked to DIYbio prefer to define themselves as makers, craftsmen, enthusiasts, hobbyist, or amateurs”. Different words and ideas are used to define what “biohacking” is and should be. Biohacking is also defined in relation to the transhumanism movement. For Fiévet (2014), Biohacking is a “practical transhumanism” and not a theoretical one.

Biohacking has opened a new path between fiction and science, between practices and politics, body and machine. The panel will explore the biohacking phenomenon by analysing the narratives, metaphors, imaginaries underlying practices, discourses and regulations of biohacking, especially their representations of the body and technology. Those analyses could help us to better understand what raise consensus and controverses amongst the biohacking sphere, but also in relation to other movements such as transhumanism and posthumanism.

LÖHR, Guido

Eindhoven University of Technology

CONCEPTUAL CHANGE AND SOCIALLY DISRUPTIVE TECHNOLOGIES (PANEL)

According to the theme of the conference, “technologies are entangled in symbolic forms of a social and cultural nature. Technologies also contribute to the construction of new worldviews and new forms of life.” This becomes obvious especially in cases where technologies disrupt the societal status quo. The generation of new socially disruptive technologies (AI & robotics, geo-engineering, next-generation genomics, etc.) puts pressure on and even changes key concepts with which we understand and evaluate ourselves, our social world, and the natural environment. At the same time, such conceptual changes will likely inspire and make possible new technological inventions and technological progress.

It is, however, not clear what the notion of conceptual change in light of technological disruption amounts to. There has recently been much progress in the debate on the nature of conceptual engineering in the field of conceptual ethics, as well as much discussion on technologically induced societal changes. However, there has been little exchange between these literatures, and philosophers of concepts seldom consider technological changes as paradigm examples of conceptual changes.

This panel brings together researchers interested in conceptual change and philosophers of technology in order to further the discussion on how technology impacts the way we conceptualize ourselves and the world around us. It will stimulate the literature on technological changes and has ties to the Ethics of Socially Disruptive Technology Research Program (ESDT) funded by the Netherlands Organisation for Scientific Research.

The aim of this panel is to discuss what "conceptual change" can mean in the context of socially disruptive technologies. Concepts may change over time in several relevant respects. These include their meaning or intension, their scope or extension, and their preciseness or fuzziness. Conceptual change may be driven by internal developments in a scientific discipline, but also by external developments in society, such as technological developments or by normative developments.

The panel members illuminate the important but under-researched topic of conceptual change in light of technological changes from different perspectives. The panel is opened by a presentation of a typology of technology-induced conceptual changes presented by Jeroen Hopster. Guido Löhr will provide a taxonomy of different notions and kinds of conceptual changes. We then focus on concrete examples of conceptual change. Philip Nickel explores a possible change of the concept of trust in the case of robots and AI and Ibo van de Poel explores a possible change of our evaluative concepts. Finally, there will be an open discussion with the panel members and the audience.

The multiplicity of perspectives of the panel provides both a foundation to the phenomenon as well as two highly relevant and timely applications.

LÖHR, Guido

Eindhoven University of Technology

TOWARDS A TYPOLOGY OF TECHNOLOGY-INDUCED CONCEPTUAL CHANGE

What does it mean for concepts to change? First, I argue that we should distinguish concept revisions from cases where we merely conceptualize unfamiliar objects using our old concepts in unchanged ways. In other words, applying familiar concepts to a new object is not to extend its extension. It is to decide that the given object is part of its extension. So, technological changes exert pressure on our norms and practices, but we should not presuppose that this always leads to conceptual changes. What then does it mean then for concepts to change? Conceptual changes can essentially come in the form of introducing new concepts, eliminating concepts and revising concepts. Conceptual introduction could be as simple as combining concepts previously not combined, such as CYBER+BULLYING or HUMAN + OBSOLESCENCE. For this to be possible all we need is to combine words. We may introduce a new concept and associate it with a new word. I argue that most of the cases mentioned in Jeroen's taxonomy are cases of introduction. Second, it may render certain concepts unnecessary (concept elimination). We now only need to avoid using a certain term. Third, it might require the revision or change of concepts (conceptual engineering). Of these three kinds of conceptual change the latter requires the most theoretical attention. It is not clear whether revision is possible if a change of content goes hand in hand with the change of a concept. I argue that conceptual revision can be derived by combining elimination and introduction while keeping the same expression.

LOMBARD, Jessica

University of Eastern Piedmont, Italy

THE TECHNOLOGICAL IMAGE OF OUR WORLD: IN THE LIGHT OF A NEW HUMANISM

It is only logical that the word "imaginaries" comes from imago (image). An image links together the question of truth with the ontology of the existing (real) or imaginary (virtual) presence of a being. And as Heidegger underlines, technology also is a way of revealing. “What has the essence of technology to do with revealing? The answer: everything.” (1977 [1953], The Question Concerning Technology).

If both technè and imaginary have to do with the Greek alètheia, the unconcealing of truth, "technological imaginaries" are more than ever a depiction of what we understand, see and anticipate of our world.

By following Heidegger’s groundbreaking rereading of humanism in its Letter on Humanism, and its innovative interpretation by Peter Sloterdijk in the Elmauer Rede, I will show that: our imaginaries today and for the first time cannot be anything else than technological.

Despite technological imaginaries were unheard of, and maybe not even possible to imagine before our contemporaneity; they are now the most common way to picture our world.

Indeed, the human understanding of their own humanitas now depends on the image that our technological sphere of existence reveals. Be it in the light of new technological changes (genetic engineering, prosthetic modification, AI governance…) or through the proper reflections that those changes display (human enhancement, chimeras, cyborgization, Singularity…), the notion of human condition is evolving, both in fact and as an image we conceive.

Consequently, I will claim that the unavoidable opening of the notion of humanism (currently exemplified in the rise of movements like trans-, post-, ab-, meta- humanisms) was initiated by the development of technological imaginaries. They guaranteed that the answer to “what it means to be human” was found less in the education of the Cartesian animal rationale than in the evolution of a technological species.

LÓPEZ-CEREZO, José Antonio

University of Oviedo

TECHNICALLY MEDIATED OBJECTIVITY: THE ROLE OF INSTRUMENTS AND TECHNIQUES IN THE RISE OF SCIENTIFIC MEDICINE

The passage from the 18th to the 19th century produced a great revolution in medicine, with the advent of the anatomopathological paradigm. It involved not only a new vision of the nature of the disease but also a new conception of the structure of reality in which the physician must make a diagnosis and propose a therapy. The growing availability of instruments such as the stethoscope, the centrality acquired by certain techniques such as autopsy, as well as the new nosological perspective from pathological anatomy, induced a reification of diseases and the unfolding of reality in two worlds: the objective world of underlying reality, accessible to the professional through those instruments and techniques, and the subjective one pertaining the experiences and perceptions of the patients. It is defended in this presentation that such differentiation between objective signs and subjective symptoms, which goes hand in hand with the appearance of modern scientific medicine, constitutes an adaptation of the classical differentiation between primary and secondary qualities, which accompanies the new disciplines that arise from the scientific revolution of the 17th century. The stethoscope and other medical devices fulfilled a function in medicine similar to that fulfilled by the telescope and new measuring instruments in physics and astronomy: they made possible technical access to an objective world beyond our naked senses and understanding, creating a public space with private access for the new emerging professional that arises from the convergence of medicine and surgery in the early 19th century, and eventually making possible the scientific foundation of the new medicine on a technical-procedural concept of objectivity.

LOUTE, Alain

Catholic University of Lille

TELECARE AS EMPOWERMENT ? EPISTEMOLOGICAL AND ETHICAL REFLECTIONS

The development of telemedicine and telecare has been part of a "promise economy" (Joly 2015). In addition to the promise of lower healthcare costs, one promise is that of patient "empowerment." For former Belgian minister Maggie De Block, m-health should allow the patient to become the "co-pilot" of their health. Marysol Touraine saw e-health as a "factor of empowerment that gives people the means to achieve freedom and autonomy".

This raises a question that is inextricably linked to epistemology and ethics: how can we assess whether this promise is being kept? It is clear that the practice of distance care is still characterized by a "lack of knowledge" (Pols 2012). In a report published in 2013, the French HAS underlined the strong heterogeneity and methodological weakness of existing medico-economic evaluations of telemedicine. Even more than a lack of knowledge that science would not fail to fill, it would seem that there is a methodological difficulty in evaluating telemedicine (Botrugno 2017; Kaplan 2008; Conford 2001).

The thesis of this presentation is to demonstrate that the evaluation of this promise is only possible if we take into account the "spatialization" and "subjectivation," to put it using Foucauldian concepts, that the technical devices of telemedicine and telecare induce. Many works in STS and in Philosophy of Technology have indeed shown that telecare transforms the spaces of care (a. o. Oudshoorn, Arras and Neveloff Dubler) and the subjects of care (a. o. Verbeek, Dorrestijn).

LOUTE, Alain

Catholic University of Lille

TOWARDS AN EXPERIMENTAL ETHICS OF HEALTHCARE ROBOTICS

What ethics of healthcare robotics? For Wallach and Allen (Moral Machines, Teaching Robots Right from Wrong) robotic ethics should aim to teach robots the difference between good and evil, to turn them into "artificial moral agents". Dumouchel and Damiano call this robotic ethics "analytical ethics". Such a robotic ethic approaches the robot as an isolable entity that could be ethically programmed independently of its insertion in a socio-technical context.

In contrast to this approach, the ethics of care have reminded us that caring is therefore not just a set of technical gestures, but a meeting between subjectivities. If the ethics of care have the merit of paying attention to the social and relational context in which care takes place, the technical object is often absent from the reflections in the ethics of care, when it is not presented as its opposite (Mol, Moser, Pols).

Between an "analytical ethics" that wants to insert ethics into the machine and an ethics of care that thinks of ethics as something other than technique, this presentation aims to open up a third way. We will follow Dumouchel and Damiano's proposal to develop a "synthetic ethics" or "experimental ethics": paying attention to the moral stakes of the co-evolution of human and artificial actors, in a process where knowing is inseparable from doing. In other words, it is a question - at the very ethical level - of drawing inspiration from the experimental approach of bionics to conduct a "collaborative inquiry" (Dewey) on this co-evolution.

LOZANO, Alejandro

University of Salamanca

THE CONTESTED AESTHETICS OF THE CYBORG

The cyborg (Clynes & Kline, 1960), develops into a main protagonist of the cyberculture at the end of the 20th century (Dery, 1997; Bell & Kennedy, 2007; Bell et al., 2004; Silver, 2004; Silver & Massanari, 2006). The publication in 1985 of A Cyborg's Manifesto marks a turning point in the growth of this 'fiction mapping our social and bodily reality' (Haraway, 1991: 150). This 'postmodern icon' of 'infinite flexibility' (Wajcman, 2004: 93) becomes a model for a subversive identity that is fit for tackling the challenges of the upcoming millennium. Cyborg citizenship (Gray, 2002; Hughes, 2004) would incorporate minorities historically cornered by hegemonic humanist theories, and could easily include the arrival of technologically enhanced humans (Miah, 2008: 90). The hybrid texture of the cyborg, which lacks a fixed essence and represents the blur of the human and the non-human (Verbeek, 2008: 387), would also free us from an anthropocentric relation with nature (Braidotti, 2013).

During the same decade that Donna Haraway publishes her manifesto, a different kind of cyborg stars countless blockbuster movies. We watch military-grade reinforced humans such as RoboCop's Alex Murphy (Paul Verhoeven, 1984) playing the role of the hero (or the villain) in dystopian universes where the majority of the population struggles just to survive another day. These cyborgs behave like lone wolves, act in solitary and sometimes above the law, which is in contrast with the theories of cyborg community.

There has been a cultural dispute around this icon of technoculture (Aguilar, 2006; Squires, 2007), and the outcome is uncertain. Even, if at this moment, the cyborg is a category mostly worthy of historical consideration, I argue that an exploration of its aesthetics invites to re-examine central assumptions about this topic. This is helpful to clarify how technological imaginaries operate.

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LUAN, Scott

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TECHNOLOGICAL IMAGINARIES OF AI: A METAPHYSIC

I aim to create a framework for analyzing how technological imaginaries of Artificial Intelligence (AI) are constituted, how they work, and their interrelations. I propose a metaphysic of technological imaginaries of AI. The metaphysic comprises a logical space of possible imaginaries about AI and formal requirements that constrain these possibilities. I put the metaphysic to work by relying on it (1) to make salient an undertheorized imaginary of AI, (2) to arrive at a set of desiderata any adequate account of the imaginary at issue should satisfy, and (3) to suggest that, unlike other accounts of related imaginaries about AI, postphenomenology is well-suited for this task.

LUCCI, Antonio

University of Turin/Humboldt University of Berlin

AGAINST VIRTUAL GNOSIS: FOR A GENEALOGICAL CRITIQUE OF PLAYER/AVATAR DUALISM

The 2WM does not only propose a precise image of how the 'real' and the 'virtual' world communicate, but also of how the subject moves from the first to the second, i.e. according to a metaphysical model that can be summarised in the concept of Avatar.

The use of the Vedic concept "avatar" to describe the subject acting in a virtual world appears to be already loaded with conceptual contents. This concept refers to the incarnation of a divine principle in a worldly actor: in other words, the passage from one world to another. The 'real' world and the 'virtual' world, the subject in the flesh and the subject acting in digital space, are thought of as two separate subjects acting in two different worlds. The Vedic avatar and the virtual avatar have in common that they are the expression of a dualistic vision of the subject, which is, gnostically, divided between a material (real) self and an immaterial (virtual, an emanation of the real) self.

The talk will begin with a genealogical survey of the avatar's religious concept and its transposition as a descriptive tool of digital subjectivity. Through a phenomenological analysis of the "digital" body employing the Husserlian dichotomous conceptual pair Leib/Körper, the phenomenological status of the avatar's body in videogames will be investigated, starting from chosen case studies (e.g., Red Dead Redemption 2, Death Stranding, Outlast).

MA, Wen-wu

Dalian University of Technology

VISUAL IMAGE AND MORAL JUDGMENT: AN ETHICAL ANALYSIS TO THE ANTHROPOMORPHIC IMAGE OF SOCIAL ROBOTS

In the structure of the relationship between the observers and their observering objects, human as an observer will grasp the objecsts as an image in visual thinking by two kinds of visual activities: the one is “seeing-as” in Husserl's philosophy, the other one is “seeing-in” in Wittgenstein’s philosophy. On this basis, human understand the meaning of the token of image according to specific conventional rules. The image design of social robots is increasingly anthropomorphized, which brings a new visual experience to human. Observers regard social robots as members of the social community in the cognition, emotion and behavior of human-machine interaction, make moral judgments to the behaviors of social robots based on the human social ethics norms, and construct the intersubjectivity of human and social robots in the social ethics. This kind of relationship between human and social robots extend the scope of moral concern from living beings to inanimate artificial agents, and expand the theoretical field of moral patient, but at the same time it challenges the human-centered social ethical structure. Therefore, based on the theory of image in philosophy, this paper analyzes the relationship between human and social robots, and draws the following conclusions: on the one hand, it is necessary to make moral design for social robots to reduce their impact on the ethical structure of human society; on the other hand, it is necessary to construct a kind of inclusive social ethical culture and correctly guide the application of social robots.

MAHASWA, Rangga

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TECHNO-ANTHROPOCENE ON THE POSTPHENOMENOLOGICAL APPROACH

The Anthropocene discourse's popularity received special attention from most of the scientific community, including philosophy. The Technosphere findings lead to a more specific Anthropocene discussion, which leads to the latest global technological conditions. This article aims to examine the understanding of the Anthropocene and Technosphere comprehensively through the Techno-Anthropocene thesis.

I base this research method on a literature study to review the actual problems of the theoretical linkages of the Anthropocene and the Technosphere relations. Techno-Anthropocene is the research object, while the Post-phenomenological approach is the lens guiding the research.

In summary, this study finds that Post-phenomenology can be an alternative approach to investigating the Techno-Anthropocene as a global relation of humans, technology, and nature. Several other findings: First, hyper-object as an ontological view and multi-stability as the basis for the Techno-Anthropocene epistemic. Second, geological Anthropocene ratification is possible when a geological time scale transition point is found by relying on a techno-stratigraphic approach. Techno-Anthropocene proposes an alternative view through the history of technological movement diachronically by looking for ancient techno-fossils or since The Great Acceleration as global events synchronically. Third, the Techno-Anthropocene criticizes the development of contemporary technological philosophy and lack of attention to globalizing human-technological mediation relations. Therefore, the Anthropocene issue is neglected, even though, on the one hand, technology plays an essential role in this discourse. Finally, the future of Techno-Anthropocene can reveal new understandings regarding non-anthropocentric relations and ecological public awareness globally.

MALEVÉ, Nicolas

London South Bank University

MAKING VISION AVAILABLE

Today's digital platforms increasingly rely on Computer Vision algorithm to classify, filter, label, censor, augment and organize their visual content. The recent breed of algorithms performing these tasks are often based on a deep learning framework and their efficacy depends on the quality of their training. In this context, the training consists of feeding a program with huge curated sets of data from which it "learns" regularities. The production of these datasets requires an infrastructure at web scale. A large population of precarious workers, recruited on crowdsourcing platforms, annotate billions of images to describe their contents to machines. In this economy of looking, a certain way of seeing is privileged: the glance. As the cost of gathering annotations is bound to the production rate of the annotators, they are working at a pace that barely allows them to see the images. For computer vision, the glance has become infrastructural.

This presentation will address the particular model of vision at work in the industry of machine learning annotation through the analysis of two experiments made by Computer Vision researchers. These experiments have been conducted by Fei Fei Li, the director of the Stanford AI Lab. The first one studies the description of students being exposed to a visual stimulus for less than half a second. The second, conducted a decade later, translates the findings of the former from the context of the lab of psychology to the micro-labour platform. It studies the labels produced by workers when they are shown images for less than 400 milliseconds and the evolution of their error rate.

Elaborating on these experiments, I will emphasize the importance of extending our techno-imagination to the larger assemblages and time scales that make the objects of vision tractable to machines.

MAMAK, Kamil

Jagiellonian University

COULD CRIMINAL LAW PROTECT OUR RELATIONS WITH ROBOTS?

At least for now, robots do not share intrinsic human-like or even animal-like qualities. At the same time, some believe that robots are more than mere things. In other words, some imagine that robots are something more. Could we expect others to respect our relations with robots based on that imagination? One of the ways of ascribing moral patiency to robots is to use the relational approach. This point of view is mostly represented by M. Coeckelbergh and D. Gunkel (c.f. Coeckelbergh 2010; 2012; 2014; 2020; Coeckelbergh and Gunkel 2014; Gunkel 2018a; 2018b). According to this view, the source of moral consideration lays not in the way in which the entity is build but on the bonds with our relationship with them. The key are social relations between humans with robots (Coeckelbergh 2010, 217). The mentioned authors are not focusing on how we could incorporate that view into the law. The analysis of the current criminal law shows that the relational aspects are present in the law, end there are provisions that are based solely on the relational approach. Gellers also claims that the relational approach is present in law but as an additional (not the one and only) argument for legal standing (Gellers 2020). I will analyze two provisions. First concerning monuments and criminal law. Even if they are made from cheap materials and do not have significant historical or artistic value, there are jurisdictions where monuments are protected by law. There is even a crime called "insulting a monument.", which in the same cases could be reduced to the social meaning of such thing. The other example is even more persuasive. There is a petty crime in the Polish legal system that protect the relations that we could have with artifacts: "Whoever takes for the purpose of steal, appropriates or intentionally destroys or damages someone else's thing that represents intangible value, shall be punishable by a fine or a reprimand.". Based on that analysis, I will consider the possibility of protecting robots through criminal law.

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MARIN, Lavinia

TU Delft

FRAMING DIGITAL RESPONSIBILITY FOR ONLINE SOCIAL ENVIRONMENTS

Social media platforms are technically-mediated environments where users meet socially yet not in an embodied way. These platforms are also the sites where moral issues emerge because of the collective interactions at a mass-scale. One such collective-level harm concerns the distribution of misinformation by regular social media users, who often act without any intention to mislead others. The harms created by misinformation are visible at a collective level, as climates of misinformation will guide collective beliefs and even policy-making in some cases. The pressing question is then what kind of ethics can tackle such collective harms in a way that does justice to the disembodied yet social meaning-making processes? Given the focus of enactivism on social sense-making, this framework presents itself as a promising candidate for fleshing out a concept of digital responsibility beyond methodological individualism. But is enactivism enough to tackle the difficulties of responsibility attributions for social media user's actions? In this article I will try to give an affirmative answer to this question. First, I will show how the harm of misinformation cannot be tackled with individualistic ethical approaches and needs instead an ecological approach. Second, I examine Luciano Floridi's proposal for digital ethics as an ecology of information and show how its focus on information as an epistemic good misses the wider implications of our day to day interactions on social media. Third, I examine the potential of enactivist ethics as relational ethics for tackling the harm of misinformation and find it is not fully suited to the job. Finally, I propose to complement the enactive account with insights from Floridi's digital ethics and propose an enactive approach to digital responsibility for social media users that overcomes the objections brought to both individualistic and relational ethical approaches.

MARTIN, Diana-Adela

TU Eindhoven

THE TWO CULTURES OF ENGINEERING EDUCATION

The characteristics of engineering culture were first cast by C.P. Snow in opposition to those representative of the humanities. This distinction overlaps with a 200 year old hierarchisation of sciences, according to which natural sciences are at the top of the hierarchy, and social sciences are found at the bottom (Cole, 1983; Budd 1988). Despite the diffusion of different hierarchies of sciences, they all shared a similar intuition according to which some fields of research, indicated as “harder”, are more rigorous than other fields, described as “softer” (Fanelli 2010). The valorisation of the “hard” over the “soft” found its way in engineering education, which is built on technical prioritization and disengagement from ethical and societal concerns. In this presentation, I explore how the dichotomy between “hard” and “soft” subjects is perpetuated in engineering education, focusing on the Irish context. For this, I draw on a study that includes 23 Engineering programmes in Ireland, which reveals how the status of ethics as a “soft” and “non-essential” subject is made manifest at individual and programme level.

MAURO-FLUDE, Nancy

RMIT University

COUNTERING THE SCOPOPHILIC STANCE – DECEPTION AND MACHINE UNLEARNING

The variety of techno-cultural imbroglios - cyber-physical systems - that many of us rely, compels us to renew critical questions about Artificial Intelligent (AI) infrastructure. Disentangled from the logic of efficiency and the smooth veneer of objectivity, these emergent systems are entwined with biology, ecology and sociality. While machine learning processes are evolving to perform tasks and make decisions on behalf of the public, the cultural implications for our embodied world in relation to this remain largely unexamined and to be sure 'the bio-geo-politics of all this are ambiguous, amazing, paradoxical, and weird' (Bratton 2015). In this presentation I address the capacities of behaviour in computer vision, behavioural performance and human bodies, as not only sites for mediating language and experience, a crucial realm where perception takes place, but also place where subjectivity meets objectivity. In a world transfixed with representation, measuring, extracting resources and results, AI is often posited to be automated, exclusive of human intervention, recent debates around have revealed otherwise (Crawford 2021). Demonstrated by the human crowd-workers in Amazon's Mechanical Turk service, ImageNet (2016), Stanford Vision Lab. Meanwhile while it is often understood that vision is the sense that human beings can also most actively control (Jonas 1966). Is this because we are more implicated by partaking in visceral action with the other senses which have a more proximate physical contact with the object?

Unreal tactics of illusion and deception around automated apparati and implicit trickery to leverage machine-driven prestige are not new. I draw on some examples of these to reveal a paradoxical ground that is not completely concrete, and one that is also not entirely illusory, fantasy or fictional. In order to unpick the techno utopian tropes of machine (un)learning, in doing so, I ask what other customs of embodied life worlds are possible if the authority of the scopophilic stance is not just merely critiqued but thwarted.

MCDONALD, Macy

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PREDICTING REPETITION AUTOMATISM: CRITIQUING RECIDIVISM ALGORITHMS WITH PSYCHOANALYSIS AND ALLEGORESIS

In this paper, I will consider how psychoanalysis reveals the objects and impasses of the algorithms that govern contemporary institutional decision-making. The main focus will be the COMPAS algorithm, a widely used recidivism algorithm in the United States. This decision support system classifies potential parolees based on their risk of reoffending. In 2016, Propublica revealed COMPAS's results were racially biased, and the software has since been widely critiqued for its biases and errors. However, most of these critiques either focus on "fixing" COMPAS's errors or become stuck in the commonplaces of transparency, accuracy, and bias. While these errors require intervention, I argue that algorithmic errors also present opportunities for analysis. Algorithms are mathematical frames applied to datasets. And datasets amalgamate traces of an intersubjective unconscious; one written in quantitative signifiers with embedded power differentials between observers and observed. Algorithms automate the intersubjective unconscious in tension between observer, observed, and owner. This tension goes mostly unnoticed in the banal algorithms that nudge us through daily life. However, just like Freud argued the psycho-pathologic mechanisms obvious in neurodivergent individuals presented more subtly in neurotypical individuals, the errors of extraordinary algorithms expose pathologies quietly expressed in their more mundane counterparts. Guided by Lacan's seminar on "The Purloined Letter," I will analyze the intersubjective unconscious automated by COMPAS. I will focus on its application as an attempt to predict and control the repetition compulsion. I will also use the "The Purloined Letter" to reflect on the limitations of critiquing algorithms from within their own paradigms, and ask how the algorithmic automation of captured repetitions place our futures in Procrustean beds.

MCMILLAN, Ian

Partner, Bereskin & Parr LLP

A KANTIAN ACCOUNT OF THE JUDICIAL EXCEPTION TO PATENT PROTECTION

Some kinds of inventions are excluded from patent protection. These exclusions are categorized as laws of nature, natural phenomena, and abstract ideas despite usually involving artifacts such as computers and pharmaceuticals. The reasons for and scope of these exclusions are unclear. They have been criticized as likely to impede innovation, contrary to the purpose of patent law.

The paper explains the exclusion of laws of nature and natural phenomena (and abstract ideas such as mathematical algorithms) as resulting from distinguishing between thinking theoretically, about how inventions work, and reasoning practically, about how to reconcile the freedom of a plurality of persons. We cannot reason about freedom and rights in theoretical terms, and thus cannot directly rely on theoretical concepts such as laws of nature to define rights.

The paper explains the exclusion of some inventions involving artifacts as necessary to reconcile patent protection with each person's innate right to independence. Within the scope of our independence, others may neither tell us what to do, nor force us to do it. Property and patents may conflict with independence since they can be unilaterally (without others' consent) acquired. Kant explains how independence limits property by limiting what is unilaterally acquirable. Unilateral acquisition conflicts with independence unless the object acquired is rivalrous (its use requires others' noninterference with this use) and external (one person cannot unilaterally acquire part of another). And this rivalrous external object must be in the first possession of its acquirer. The paper extends Kant's explanation to patent law, showing how judicial exception jurisprudence limits patent protection to inventions enabling new and unobvious uses of rivalrous external objects. These use s, which would be impossible without the invention, can be thought of as in the first possession of the inventor, reconciling patent law with independence.

MELNYK, Anna

TU Delft

Co-author: Steffen STEINERT

FROM ENERGY EFFICIENCY TO ENERGY DEMOCRACY? SCRUTINIZING THE MORAL FOUNDATION OF MULTIFACET VALUE CHANGE

Values that currently underlie social, institutional, and technological arrangements of energy infrastructures were inherited from the past and are partly historically and politically constructed. Institutions are the "photographs'' of values underlying infrastructures, social structures supporting them, and social practices engaging with the energy. Institutions can reveal values supporting exploitative technopolitical regimes that are a significant moral concern in the energy sector. Nowadays, there is a vital need for these values to be re-evaluated and changed to support a transition to more sustainable, fair and just energy infrastructures. Energy democracy is an important socio-political development that captures the complex dynamics of the on-going value change in the energy sector. Institutional support is particularly important for realizing value change as institutions have a normative power and can permit, limit, restrict, or specify individuals' behavior. This normative power may have the underlying moral foundations of the ideal visions of goals such as value change. In the context of energy democracy, we suggest that philosophical ideas of moral progress comprise such a foundation with values like inclusion, social justice, recognition at its heart. Yet there is still a blind spot on the facets, levels and implications of value change in a relation to institutions. By looking at the different institutional logics, we can get some insights into values, beliefs, and rules that comprice institutions and are used by people to make sense of social reality and guide their actions. This exploratory paper aims to disentangle the complexity of the transition to energy democracy, framing it as a multifacet value change.

MESSAL, Stephanie

Icam

ROBOMANIA, ROBOPHOBIA

Robots are both fascinating and frightening. By generating ambivalent feelings, they reveal our personal fears (the archaic ones), fantasies and beliefs. Before Masahiro Moto (1970) and his “Uncanny valley” concept, Sigmund Freud already wrote about the “Uncanny” (1919). Dolls, automats, robots: all refers to this. They look like us, but they are not like us. However, their presence “speaks” things about us.

Our creativity is embodied in robots: it takes shape in them. As André Leroi-Gouhran wrote, human externalizes himself by creating tools and machines. Robot has always been there in our mind and then they are here. They can be fun toys (Aibo), personal assistant (Alexa) or manufacturer (articulated arm). They can be useful in different areas (industry, medicine). They can look cute (Qoobo, Paro). But others seem terrifying (military or humanoid robots). Why? Where does this fear come from? There are many fictions about robots (novels, movies, etc.). Some of these robots are nice and helpful partners (R2D2 in Star Wars) while others are terribly dangerous (Terminator). At worst, they can kill their own creator (Bladerunner). So maybe, they can destroy, control, and replace us. But all these fantasies are projections of our own psychic life.

When the machine breaks down, when it is out of control, it reveals by reflection (mirror effect) our own failure: the possibility we can lose our self-control and mind. Madness is not so far that we can expect… The mechanical failure reveals our weakness: how frail we can be!

Fear is an ancestral emotion which signals us a danger. Where is the danger with the robot? Is it in the robot or in us? We will go to the Hephaestus forge to find some answers with the gold assistants (automaton). As God of fire, he knows how to make and shape “life”.

MICHELFELDER, Diane

Macalester College

AUTONOMOUS VEHICLES AND TECHNOLOGICAL IMAGINARIES: TEST-DRIVING THE FUTURE (PANEL)

Behind issues such as cybersecurity, vehicle safety systems, and communications systems which have been identified as being of importance when it comes to considering the ethics of autonomous vehicles lies the assumption that technologies themselves are the primary actors when it comes to shaping the transportation landscape of the future. The four papers to be presented in this panel collectively aim to take a step toward questioning this assumption as being an adequate basis for autonomous vehicle development and design. In keeping with the theme of this conference, they explore ways that autonomous vehicles are not simply a novel, AI-enabled means of getting from here to there but are entangled in a variety of technological imaginaries implicated in historical narratives, linguistic conventions, individual habits of attention, as well as "soft" practices involved in social and community interactions. Acknowledging and exploring these imaginaries has the potential to bring a different set of ethical issues to the fore than ones that are focused on the uses of AI in autonomous vehicles, and to open up a space for asking about the implications of this set of issues for autonomous vehicle design.

The panel organizer and participants believe that these papers will work most effectively if they are given as part of a panel rather than as separate presentations on the SPT program. While the papers cover different topics related to autonomous vehicles and approach these topics from several different philosophical points of view, the novel perspectives presented in the papers create a great deal of synergy, a synergy that would be lost were the papers to be presented individually. This synergy will hopefully inspire good discussion and substantial debate among both the participants and the session attendees and make for a productive session overall.

MICHELFELDER, Diane

Macalester College

URBAN ALLEYWAYS AND AUTONOMOUS VEHICLES

In this paper I look at autonomous vehicles through an urban environmental lens, with a particular focus on the unmarked alleyways that crisscross the marked, algorithmically-recognizable streets in most major American cities. While alleys have long shed their original purpose in urban transportation design—accommodating the needs of horses for horse-drawn carriages--in many cities today they continue to function in lively, transportation-connected ways by supporting informal, scavenger, "off the grid" economic and social relations. They are also used for more "playful" economic exchanges such as garage sales and free swaps. These activities, particularly the fairly chaotic parking in alleyways often associated with them, are mediated by driverly "social graces", which contribute to urban social resilience.

As Gadamer has observed, such informal ways of interaction are not the explicit products of reasoning but are more the results of an unconscious ethos that has settled into everyday informalities. Getting along with others in urban contexts depends on such informal practices, not easily translatable into rule-governed actions and behaviors, reflecting cultural and community-based standards of decency and civility, that help add to the resiliency of urban social life.

But if driverless vehicles cannot identify alleyways because they are generally unmarked and ignored by algorithmic activity, how will the liveliness they represent be impacted when driverless cars become more prevalent? All design works to shore up and protect certain values while removing support from other values and making them more vulnerable. That autonomous vehicles and alleyways cannot easily meet underscores the need to ask how the former could be better designed for human use in support of a socially resilient city.

MIELI, Micol

Lund University

TECHNOLOGICALLY MEDIATED TOURIST EXPERIENCES: THE TOURIST AND THE SMARTPHONE

As smart and as stupid, as well- and ill-informed, as curious and closed-minded as any random sample, tourists represent a unique object of study, as they are "the last remaining class that exhibits consciousness for itself" (MacCannell, 2013 p.xix). Technology has been transforming the tourist experience deeply, as it both fulfils a functional purpose of performing tasks for humans, and it holds a wider, deeper meaning and role in the human experience, where it imposes behaviours and worldviews on humans.

The present research is an empirical-philosophical inquiry on the tourists' digital worlds. The question I pursue: what does technology do to the tourist's experience of their travel? I adopt Don Ihde (1990) and Peter-Paul Verbeek's (2016) post-phenomenological views of technology, which pose questions of how concrete artefacts, that is technologies, mediate human existence and experience. In particular, I focus on one specific technological object, the smartphone, and investigate what it means for tourists to have a smartphone with them at all times. How does it mediate the construction of their travel experience? The research is designed as a two-part study, combining Experience Sampling Method (ESM) and semi-structured interviews, with the aim of capturing both tourists' experiences on site and their recollections after the trip.

Studying tourist and their unique experiences while traveling offers a glimpse into a "purified form" of "what in ordinary life is mixed and obscured" (Bauman in Franklin, 2003 p.208) and my research shows how such a technology can mediate several aspects the tourist experience: from planning a trip, to remembering it. The traditional temporal dimensions of the trip (pre-, during and post-trip) become blurred as time is mediated by the smartphone and its capabilities. Serendipity and optimization get to coexist, rejecting the traditional juxtaposition between planning and spontaneity. Experiences are transcribed and re-transcribed through videos and photography, creating memorable experiences not only through the lived experiences but through the digital re-transcription itself. Tourist attractions are continuously made and remade through the semiotic relationship between a site, a tourist and a marker (MacCannell, 2013).

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MILANI, Benedetta

Leuphana Universität Lüneburg

THE DIGITAL AND THE MYTH: A TECHNO-MYTHICAL WORLD?

Computational process, data mining and algorithms are some of the key words of the functioning of the digital world. Those processes contribute to producing an environment where knowledge (and reality) is created in a way that exceeds the human and can not be controlled by it, at least not in the scientific modern way of verification.

We face the epistemological problem on how knowledge and meaning are produced in the digital world (a world that strays the threshold of the screens and is a cultural form) and what kind of rationality comes in art in it. The artificial intelligence of the network promises to be objective and highly rational: it creates meaning by correlating data, is omniscient, has a perfect memory and most of all works with a logic that can not be fully grasped by human intelligence.

It seems that the digital world shapes an environment, which is closer to the mythical atmosphere than to modern European thought and its form of rationality.

In my presentation, I will investigate how the epistemic categories of the digital world are close to the mythical ones. I will focus on the immersive power of both worlds, which causes the collision of the noumenal dimension into the phenomenical (Hansen 2021) and therefore the closure of the distance (as Denkraum) typical of the modern philosophical perspective. In this world, philosophy has to reposition itself and its subject. A crucial question is indeed the one on the subject: maybe more mythical than modern, the subject is immersed in an environment where everything is a sign with meaning and contingency is impossible. In this techno-mythical atmosphere what kind of subject is made possible?

MILHANO, Ângelo

Praxis: Centre of Philosophy, Politics and Culture - University of Évora

CINEMATOGRAPHIC REPRESENTATIONS OF TECHNOLOGICAL IMAGINARIES: A CRITICAL-HERMENEUTICAL GROUND TO DEBATE SOCIAL PREJUDICES ON TECHNOLOGY?

The technological imaginaries created by some cinematographic works can have a large influence over the social conceptions of the impact of technology and the path of its possible developments. Departing from the technological imaginaries created in three cinematographic pieces (Her, Blade Runner 2049, and in the San Junipero episode of the series Black Mirror), this communication will try to understand, in its first stage, three possible hermeneutic circumscriptions of the digital mediation of the relationships that, in the digital domain, can be established between a) human beings and artificial intelligence; b) between human beings and human like simulations; and c) of the relationships between human beings on digital constructed environments. On a second stage, the communication here proposed will seek to understand whether these three possible circumscriptions of digitally mediated relationships find some of their grounding on the research already done by some canonic authors of the hermeneutical tradition of Philosophy of Technology. As a conclusion, the communication will try to focus itself on opening a discussion around the capacity that this type of technological imaginaries — created by cinematographic pieces — have of becoming a critical-hermeneutic ground for a serious debate about the existing social prejudices created around the themes they represent.

MILLER, Glen

Texas A&M University

Co-author: Cora DROZD

ON DEVELOPING IDEAS AND CHARACTER IN A TECHNOLOGIZED UNIVERSITY

The increasing technological mediation of discourse that previously occurred in campus halls, quads, and classrooms has also transformed it. Much of what used to be communicated orally or in written comments on paper now is shared through technologies including learning management systems (LMSes, e.g., Blackboard and Canvas), email, and, especially in the covid-19 era, Zoom; student interaction outside the classroom—with peers and professors—has similarly moved more online than off; and many faculty, whose work is now assessed in part with Learning Analytics, now are active participants in social networks such as Facebook and Twitter. In this paper, we outline these technological transformations and consider their intellectual and ethical implications with an emphasis on aspects of surveillance and privacy. Using the lens of "information self-determination," developed by Alan Westin at the outset of the Data Age, which protects "the right of the individual to decide what information about himself should be communicated to others and under what circumstances," we consider the kinds of rights and technological boundaries necessary to protect robust intellectual discourse in classrooms, academic fora, and popular and social media. Our argument also draws off of the work of danah boyd, who de-emphasizes data control and property claims for data; Helen Nissenbaum, who stresses "contextual integrity"; Neil Richards, who develops "intellectual privacy" as the intersection between freedom of speech and privacy; and Paul Schwartz, who explains the importance of protection and coercive forces.

MIRANDA SUÁREZ, Maria J.

University of Oviedo

Co-author: Marta I. GONZÁLEZ GARCÍA

THE DREAM OF THE ELECTRIC SHEEP: TECHNOSCIENTIFIC IMAGINARIES AND NON-HUMAN ANIMALS

Contemporary visions of "our common future" compound a heterogeneous array of catastrophic disasters and over-confident promises. The central role of technology is what all of these contradictory images about our destiny seem to have in common. Philosophy of technology has offered us in the last decades some conceptual tools and empirical analyses for avoiding the technological determinism of much popular technoscientific imagined futures: the language of coproduction and coevolution, or the idea of a "dance of agencies", are part of current approaches in which human intentions and actions get entangled with the material world. However, while scholars debate material agency and its consequences, other non-human agencies, those of non-human animals, are mostly missing or problematically portrayed in those debates.

In this contribution, we will be following a non-human actor that, although humble and mostly invisible, has a leading role in contemporary biotechnological innovation: sheep. By analyzing the ways in which sheep is being represented and enacted both in technological practices and discourses, and in popular culture, we will show the limitations and challenges of common thinking on sheep agency.

How imaginaries of sheep are conformed through multiple connections of facts and fictions will lead us to identify to what extent our technoscientific culture trends fuzzy ideology and how sheep and humans become entangled. Our analysis begins with the much known case of Dolly and other fictional sheep (films, tv, books, video games), but we will also focus on anonymous sheep enacted as "models", "bespoke resources" (M. Michael), "biomedical objects" (M. Schlünder) or "lab workers" (D. Haraway). Through the articulation of technoscientific and cultural imaginaries of sheep, we will critically approach the tensions involved in giving account of what agency and coproduction mean in human relationship with technology.

MITCHAM, Carl

Colorado School of Mines / Renmin University of China

LEO STRAUSS'S POLITICAL PHILOSOPHY OF TECHNOLOGY?

Leo Strauss does not have any obvious political philosophy of technology. In a number of cases, however, his provocative studies of a spectrum of political philosophers — Greek, medieval, and modern — do reference technics and technology. Such references also occur at times in his often cryptic criticisms of modern philosophy and politics. Additionally, occasional commentaries on or criticisms of technology especially by conservative leaning American intellectuals have drawn on Strauss. Prescinding from Strauss's own large and controversial body of exegesis as well as from most of the post-Strauss interpretative debates about his teaching, the following somewhat naive reading will attempt to identify key elements that might contribute to a thinking of political philosophy of technology after Strauss. After observing how little Strauss has been attended to in the philosophy and technology studies community, I will review Strauss's distinctions political philosophy, political thought, political theory (and policy), political theology, and social philosophy, noting that discourse on relationships between politics and technology can mostly be classified as what Strauss terms political thought, political theory, or social philosophy. I will then turn to four key themes in Strauss's politicial philosophical scholarship and consider what they might suggest for a political philosophy of technology: the distinctions between ancients and moderns, between reason and revelation, between politics and philosophy, and the theologico-political problem. In what respects is Strauss's ancient-modern differentiaton reflected in a technics-technology (or ancient vs modern technology) distinction? In what ways do reason and revelation cooperate (or resist) the emergence of modern technology? Does modern technology intensify or meliorate a tension between politics and philosophy (or rewrite the theologico-political as a technogico-political problem)? Is there anything like a political theology of technology?

MITCHAM, Carl

Colorado School of Mines / Renmin University of China

GLOBALIZATION IS NECESSARY BUT IMPOSSIBLE: THE EXISTENTIAL CONTRADICTIONS ENGINEERS (AND EVERYONE ELSE) ARE IGNORING

A descriptive argument that globalization is both intentionally and unintentionally being created by modern engineering progress and the technical confidence of engineers is complemented by a normative argument that engineered globalization is creating existential risks that require more engineering to deal with them. Consideration is given to the distinctive 19th century emergence of English-speaking engineering and its collusions with capitalism as well as the 20th century emergence of existential risk discourse. The distinctive existential contradiction in which we find ourselves is that although objectively engineering is now critical to human well-being, it is not a way of life that is able to be either epistemically or politically by the masses and thus impossible in any approximation of a democratic regime. Neither engineers nor social scientists nor humanities scholars are paying sufficient attention to this problem in the political philosophy of engineering. Quelle chimère est-ce donc que l'homme? quelle nouveauté, quel monstre, quel chaos, quel sujet de contradiction, quel prodige! — Blaise Pascal, Pensées (Fragment 164). The human condition is laced with contradictions. This essay is an effort to describe a new one in which we now find ourselves. At this stage it is little more than a ragged sketch or notes for such a description. Yet as an attempt to address a critical but too much ignored issue, perhaps it can be justified by G.K. Chesterston's quip, that "If a thing is worth doing, it is worth doing badly".

MOORE, Kelli

NYU Steinhardt University

GOVERNMENTALITY AND THE COMMODIFICATION OF COMMUNITIES OF TELE(CARE) (PANEL)

Remote care is presented by many institutions as a promising solution to the challenges facing our health systems. The European Commission stated in 2007: « Everyone in Europe is getting older and chronic disease are on the rise. A telemedical initiative could offer a constructive way of dealing with these growing challenges ». In addition to the promise of lower costs, telecare or telemedicine is often presented as a means of empowering the patient. Cutler (2013) refers to the entry into a new era, that of a "centric patient": a patient who is in control of the activities of early detection of disease, follow-up or care, which were previously carried out by health professionals. In other areas, such as the prevention of sexual harassment or prison communication, digital technologies are also presented as the vector of individual empowerment. In these instances, occurring largely in the US telecare initiatives emerge from entrepreneurism in the tech industry.

The thesis of this panel is that this empowerment has to be analyzed against a hypothesis: telecare and telemedicine are new means of governing and doing business. Only by questioning the governance and entrepreneurship of telecare can the empowerment effects be elucidated.

MOORE, Kelli

NYU Steinhardt University

THE DIGITAL RAPE COMPLAINT: ALLEGATION ESCROW TECHNOLOGY AND THE SOCIAL DYNAMICS OF RAPE REPORTING

In the #MeToo era private actors increasingly organize against sexual assault and harassment using information escrow technologies that advance new social dynamics of victim reporting. At private and public entities such as college campuses so-called "allegation escrows" are electronically encrypted applications that provide algorithmic fixes that introduce a crowdsourcing paradigm into sexual assault complaint strategies. These are telecare tools that transform rape and harassment from the problem of "he said, she said" to "he said, they said." Allegation escrows originate in the distinctive bonds, deeds, and documents of contract law (Ayres and Unkovic, 2012). Users electronically log complaints, which are only released to officials when there is a match among multiple complaints and the same offending individual. Callisto® and JDoe® are designed as sexual assault reporting applications. Through a description and analysis of this telecare tool and its advertising media I suggest these escrow models shape legal evidentiary futures, the social dynamics of rape reporting, and feminist studies of technology by incorporating Value Sensitive Design principles that concern what Ngai terms, "the ugly feelings."

This presentation situates the emergence of sexual assault reporting devices (a form of allegation escrow) in relation to the victim's rights movement (VRM) beginning in the mid 1960s through 1980s (Rentschler, 2011). The VRM in the United State was an anti-defendant movement based in conservative "law and order" ideology. The paper argues that sexual assault reporting devices embody a techno-cultural and ideological meeting between tech entrepreneurship and the VRM's goals of empowering "secondary victims" of crime. Such a collaboration expands the history of telecare from a focus on empowering the medical patient to empowering the crime victim. Moreover, the allegation escrow design feature suggests a new ethics organizing telecare tools where the promise of empowerment derives from algorithmically matching and storing victim's rape and harassment claims for action in the future.

MORISSET, Thomas

Centre Victor Basch - Sorbonne Université

AN IMAGINARY OF EFFORTS: THE TECHNICAL AND CULTURAL RELEVANCE OF VIDEOGAMES

How can videogames be culturally relevant ? The answer is often to demonstrate that videogames convey subtle emotions and complex meanings. But, drawing on the works of David Sudnow, Mathieu Triclot, C. Thi Nguyen and on my own PhD thesis, I will argue that videogames are mainly culturally relevant because they broaden our technical culture and our bodily technical imaginary.

I understand videogames through the lenses of both aesthetic philosophy and philosophy of technology. In this regard, I claim that playing a game is akin to developing a technical skill. Moreover, appreciating the games that put that skill at the forefront of their experience means being able to judge and to describe the striving they demand from us, through a special kind of judgement of taste, which I christened in my PhD a “technically sensible appreciative judgement”. To prove that point, I will mainly focus on one game, Super Hexagon, by Terry Cavanagh, which appears at first as an unforgiving and dizzying maze of visual, auditive and kinesthetic nature.

Through this kind of judgement (which is not specific to games only but to technical practices in general) videogames expand our imaginary of efforts by allowing us to explore and incorporate original efforts that encompass both physical gestures and digital ones. But why is it important to expand such an imaginary ? Because it is a part of our general sensibility whose development should be viewed as necessary as the expansion of our visual imaginary through the seeing of paintings, for example. If seeing a painting let us see the world with more details, playing videogames learns us to feel the richness of our own efforts, that are too often neglected as mere means to an end.

MUNN, Nick

The University of Waikato

Co-author: Dan WEIJERS

FRIENDSHIPS WITH AI: TECHNOLOGICAL IMAGINARY OR REAL POSSIBILITY?

In our post-COVID environment, virtual friendships are increasingly accepted. We now tend to appreciate the affordances of making friends and maintaining friendships online. But when we have never seen the friend on the other end of the line, some fear remains. Are they even a real person? What if my friend is a computer programme—an AI? On many accounts of friendship, it would be impossible for an AI to be a real friend. However, we have previously argued for an account of friendship according to which friendships between an AI and a human are possible. On our account, a relationship needs two features to count as a real friendship: a preponderance of positive experiences and mutual positive intentions. In other words, friends enjoy being friends and wish each other well. A major defeater for our account of friendship and the possibility of human-AI friendships is often taken to be sentimentality. The objection claims that AIs lack the ability to have the appropriate kinds of sentiment towards a human, such that they can meaningfully be called a friend. In this paper, we detail the contours of sentimentality as it relates to friendships between humans and humans and AIs. We argue that the strength of sentiment doesn't correspond to the strength of a friendship. Positive sentiment is often, in humans, associated with well-wishing, but we argue that it is not actually required. Instead, only the attitude of well-wishing is required. A consequence of our view is that if you enjoy interacting with an AI and it wants good things for you, then it is a real friend.

MUSSGNUG, Alexander

University of Edinburgh

How Machine Learning Measures and What We Can Learn From It

I argue that supervised machine learning shares a striking correspondence with a model-centric epistemology of measurement. Both supervised machine learning and standardized measurement are model-based predictions building upon a similar two-part inferential process. Moreover, they share comparable statistical and theoretical assumptions, as well as analogies between the maintenance, cleaning, and processing of measurement standards and data in machine learning. Exploring similarities in their epistemic nature leads me to argue for a closer association of supervised machine learning with standardized measurement. Measurement and our knowledge thereof can offer unique perspectives to our philosophical understanding of machine learning and serve as a point of reference for challenges in the advancement of this technology. I briefly demonstrate this reasoning at the hand of two exemplary issues from AI ethics. First, I argue that the philosophy of measurement points towards an intriguing perspective on algorithmic bias in machine learning. Second, I propose that the history of measurement can serve as a frame of reference for the long-term social implications of artificial intelligence. Thereby, I hope to highlight two virtues of a closer examination of machine learning in the context of measurement. Comparisons between machine learning and measurement can provide a pragmatic (and arguably more realistic) counterweight to anthropomorphizing metaphors. Additionally, this line of research is a prime opportunity for interdisciplinary scholarship that takes into account historical, sociological, philosophical, and technical perspectives.

MÜÜRSEPP, Peeter

Tallinn University of Technology

THE DIGITAL TURN IN THE MONOTECHNIC-POLYTECHNIC CONTEXT

The influential historian and philosopher of technology Lewis Mumford made the distinction between monotechnics and polytechnics giving his preference to the latter. The former means concentrating on the traditional narrow understanding based on the applications of technology that often becomes the target of human activity in its own right. Monotechnical approach does not help humans but rather tends to oppress them. Polytechnics, however, means taking up a more flexible view, involving the biological complexity of humans and the social structures providing a complex framework for solving human problems. The argument of the paper is that the terminological framework suggested by Mumford helps us to take the best decisions concerning in the context of the ongoing digital turn. According to Mumford, concentrating on monotechnics is a faulty way leading to constructing useless megamachines, definite types of social systems that do not contribute to human development in the right way and may even be harmful. In the current digital age it seems very easy to fall victim of a new powerful monotechnic trap that tends to make digitalisation an aim in itself forgetting about the real needs humans have in their everyday and social-cultural lives. Thus, the main task of human-technology interaction today is keeping the human being with her needs at the foreground and treating digital technology as a flexible and powerful facilitator capable of creating the basis for the polytechnic approach and leading human civilisation away from the desire of constructing new megamachines. For succeeding, we need to bring the real human needs to the foreground and apply technology just as means and never an end in itself. The reverse attitude, introduced by Immanuel Kant, has to be kept in the case of humans.

MYKHAILOV, Dmytro

Nanjing Normal University

Co-author: Sergiy NEZHINSKY

VIRTUAL REALITY AS A NEW TECHNOLOGICAL ENVIRONMENT FOR ARTIST IMAGINATION

From the very first moments of human pre-history and to the present day technology and art were related one to the other. This relation was based on the fact that every art practice to be accomplished needs a technological environment. At the very beginning of human history, technological environments were relatively simple. Although, as history goes the more sophisticated material environments evolve. Consequently, the evolution in art is related to the development of technical environments. The structure, complexity, and other specifications of the environment influence (mediate) the artwork.

The art history before the middle of the XXth century was bounded to the field of material environments. Art objects created inside material environments shared all the limits of materiality: they were spatially located, temporal, fragile, always one of a kind, etc. It was a computer revolution that created a radically new digital environment(s) that took the artist's imagination from the material to the digital milieu. As a result, this revolution gave birth to a swarm of new art movements and art-practices: media art, 3-D Design, generative art, etc.

The digital environment provides the artist with new possibilities for an embodiment of his/her imagination. It happens because virtuality reduces the limitations of material objects and opens up a new dimension for creating digital artifacts. The virtual environment bestows the digital artifact (an artwork) with such features as: dislocation, extremely high level of plasticity, a-fragility, etc. Consequently, digital objects appear to be much closer to ideality than to materiality. Geometry, proportions, colors, and other specifications could be ‘tuned’ by the artist in such a way that is impossible in the case of a material object. More importantly, this ideal (digital) object, in a contrast to ideal numbers or mathematical objects, is still bodily perceivable. To some extent, a digital object is more perceivable than a material one as soon as its digital copy is dislocated and so remains accessible for everyone who has an Internet.

NÄHR-WAGENER, Sebastian

University of Siegen

ON MANNERS AS CULTURAL TECHNIQUES IN TIMES OF DECIVILISING INTERACTION PRACTICES

'Technology' does not only address artefacts or their production, but is embedded in social and cultural practices, which in turn are to be understood as cultural or social techniques: The way society is organised, on a small scale for example the running of a business, is a social technique. Writing and reading can be considered cultural techniques, and forms of interpersonal interaction, such as whether, when and how greetings and farewells are performed, are also cultural techniques.

In times of increasing social polarisation, which have their analogue in terms of manners in decivilising interaction practices – both in the 'analogue' and the 'digital' space – a reflection on manners as cultural techniques is highly relevant. In this respect, the possible effects of 'digital media' or ICTs, either on digital habits (Susser 2017) or even on moral skills (Vallor 2015), are discussed in terms of philosophy of technology in particular. My talk takes a more general look at the phenomenon of manners as cultural techniques: What actually 'are' these cultural techniques, how are they 'anchored' within the life-world and what role do they play for human self-understanding and 'life-management'?

In this context, and following Norbert Elias (Elias 2003, 2010, 2013), Alfred Schütz and Thomas Luckmann (Schütz and Luckmann 2017), the lifeworld structures of manners as cultural techniques in the form of 'good morals' and 'decorous conduct' are outlined. On the other hand, the human being also comes into view as an 'animal bonis moribus preaditum' ('a living being endowed with good morals/with decorous conduct'), so that manners as cultural techniques are also shown to be a central anthropological category.

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NÄHR-WAGENER, Sebastian

University of Siegen

Co-authors: Jacqueline BELLON, Friederike EYSSEL, Bruno GRANSCHE, Ricarda WULLENKORD

SOCIAL APPROPRIATENESS IN HUMAN-TECHNOLOGY INTERACTION: THE FASA-MODEL

Artificial assistants and adaptive systems are being used in more and more areas of life and interact with people in many different ways. Examples of this are no longer just robots in an industrial context: smart home technology, personal assistants that can ‘learn’ (e.g. such as on smartphones) and social robots (e.g. care-robots) are on the threshold of becoming everyday phenomena.

Usually, these technologies do not yet – or at least not very fine grained – reflect human cultural techniques for socially shared areas of action. But specific cultural techniques, such as bowing, shaking hands or smiling, are goal-oriented, body-bound processes (techniques) for handling such abstract entities like social recognition or friendliness and, thus, are essential for the success of social interactions. Especially when our everyday life will be increasingly permeated with ‘intelligent’ assistance technology as mentioned above, questions arise regarding the connection between such cultural techniques of behaviour and 'intelligent' technical systems: Can and should these be equipped with skills for socially appropriate interaction? – this was the guiding research interest of the research project poliTE, a project on ‘polite technology’ funded by the German Federal Ministry of Education and Research from 2017-2021.

The core result of this research is the so called FASA-Model. In the FASA-Model, five factors of «types of action, conduct, behaviour or task», «situation», «individual specifics», «relations between interacting agents» and «standards of customary practice» determine in mutual dependencies what is considered socially appropriate in a concrete interaction. These factors of social appropriateness are further differentiated on the basis of various criteria and indicators (these are essentially observable characteristics of social appropriateness), so that ultimately aspects of all kinds of human-technology interactions can be examined with the FASA-Model to see which factors of social appropriateness are already taken into account, could/should be taken into account, or decidedly could/should not be taken into account.

In the talk 'Social Appropriateness in Human-Technology Interaction: The FASA-Model', this model will be presented, its possible limits will be shown and its applicability to technical assistance systems will be illustrated.

NICKEL, Philip J.

Eindhoven University of Technology

CAN THE CONCEPT OF TRUST COVER ROBOTS AND AI?

The language of trust is used in relation to new technologies such as robots and AI. This is an area where technology seems to be precipitating a change in an important and central social concept. This raises several questions: Is this new use of "trust" serious? Is it explanatory? Should it be resisted? I argue that the new use is serious and explanatory, on the grounds that it distinguishes a way of interacting with robots and AI that is distinctive and carries moral significance. Cases where we are willing freely to make ourselves vulnerable to technology are psychologically and morally distinct from cases of strategic reliance on it. The moral dimension is particularly interesting, since the moral obligations of parties to a trust relationship are different from those of parties to a strategic interaction. For example, what counts as a privacy violation depends, in many instances, on whether a relationship in which information is exchanged is trusting or strategic. The conceptual change in our notion of trust will not be easy or desirable to resist because of the emotional, cognitive, and epistemic qualities of our actual interactions with robots and AI. At the same time, it is worth reflecting on the moral obligations enjoined by designers when they invite or take advantage of human trust. These place limits on what can count as healthy trust. Perhaps the danger is not so much that our trust in robots will become human, but rather that our trust in humans might become robotic.

NORDMANN, Alfred

Institut für Philosophie TU Darmstadt

THING KNOWLEDGE OR WORKING KNOWLEDGE - DOES IT MAKE A DIFFERENCE?

The second part of the session will question and challenge the very concept of “thing” in the thingly turn. In Thing Knowledge, Davis Baird refers here and there also to "working knowledge" - suggesting perhaps that these are interchangeable terms. For many philosophers in the Kantian tradition, however, "thing knowledge" is a contradiction in terms - even for Heidegger who considers the supposedly unknowable "thing in itself" as a reductio ad absurdum of modern epistemology, or for Peirce who refused the very notion of the unknowable. As against that tradition, "thing knowledge" appears to be especially provocative. But is this provocation tenable, and what does "working knowledge" have to offer in its place?

NORGUET, Benjamin

Université Paris-8 Vincennes Saint Denis

GENEALOGY OF MIND UPLOADING

Mind Uploading has became one the most exalted topic of the burgeoning imaginary of Transhumanism and technological fictions. Echoing the lost dimension of spiritual existensce and transmigration of souls, mind uploading offer promise of accessing litteral artificial paradises. It also definitively bridge the gap between human and other sapient, often his creations, whose souls can move from flesh to metal all the same, therefore granting equality of being to all. After all transhumanism has always been about creating, as Julian Huxley himself said when coining the term, a belief, a new religion, and it breeds gods and golems with enthusiasm. It's a cardinal point of modern transhumanist project and often seen as its necessary endgame. It has also became an exciting approach to the recurring question of identity and subjectivity. One could think of the recent adaptation by Netflix of Richard K. Morgan Altered Carbon to see the goldmine of philosophical questioning that fiction could see in such a technological grail.

And it's not fortuit. In Norbert Wiener seminal work Cybernetics & Society:the Human Use of Human Beings (1950), Mind Uploading already appears as a reflexion on the question of identity. While a valid possibility, this theorical technology is for Wiener a mean to explore this very question. However if Mind Uploading is often touched upon by various futurist reflexions, its origin and genealogy is obscure and rarely an object of research itself. This intervention aims to explore the origins and foundations of the concept of Mind Uploading, the genealogy of its conception and popularization, and under what conditions and for which purpose it was first brought to light. Far from being a new concept, Mind Uploading is a possibility that have been present, if not actively sought, for maybe before even computer science was born.

O'SHIEL, Daniel

Universidad Diego Portales, Santiago, Chile

SUBREAL AND SUPERREAL: SCIENTIFIC MODELLING AND THE RISE OF COMMUNAL DIGITAL IMAGINATION

Humans have always wondered what is beyond their immediate senses. Fortunately we have an inherent capacity for this: imagination. This can occur purely through the mind, or also through external means (e.g. a screen). As human knowledge and technology have developed over the years, so has the capacity to capture ultimate realities more accurately through digital and virtual models and simulations that are now reaching high levels of complexity, sophistication and interactivity. The rise of a communal digital imagination gives both scientists and non- vivid and detailed access to our latest and most accurate representations of the smallest (sub-) and biggest (super-) realities. I will argue that it is becoming increasingly important to explicitly recognize the basic categories of real (perceptions), irreal (images), subreal (e.g. atoms) and superreal (e.g. a galaxy) with which human investigation is always working, in order to combat an increasing tendency for the fake and illusory to invade and masquerade in the place of other phenomena and categories. There are four main steps to the presentation. First I outline some key philosophy of science points regarding modelling and simulation. Second I supplement this with a succinct phenomenology of subreal and superreal, departing from observations regarding perception and imagination. Third I show how new technology has given rise to a communal digital imagination. Finally I highlight the increasing dangers of the illusory and misleading hijacking and masquerading as other phenomena in various categories and domains, concluding with some recommendations as to what might be done about this, not least education regarding the still crucial ontological and phenomenological distinctions between real and irreal, factual and illusory, and genuine and fake.

OUDSHOORN, Nelly

University of Twente. Department of Science, Technology and Policy Studies

TOWARDS A SOCIOLOGY OF RESILIENT CYBORGS. MEDICAL IMPLANTS AS BODY COMPANION TECHNOLOGIES

Medical implants are often portrayed as almost magical technologies. Once implanted in bodies, they will work automatically by themselves and do not require the agency of their 'users.' This representation is problematic because a discourse that assumes a passive role for people living with implants silences the fact that keeping cyborg bodies alive involves a life-long trajectory of building resilience to the new vulnerabilities introduced by these devices. Reflecting on an ethnographic study of how people learn to live with pacemakers and defibrillators, I suggest that a sociological understanding of becoming resilient cyborgs should include the following five heuristics:

1) conceptualizing the active engagement of everyday cyborgs in building resilience as work;

2) accounting for their expertise by including sensory experiences and resilience techniques;

3) following the whole life cycle of hybrid bodies, including dying and death;

4) a sensitivity to difference;

5) conceptualizing internal devices as body companion technologies.

The metaphor of companion technologies invites us to approach technologies implanted in bodies as devices that act as life-long companions which are inextricably intertwined with all aspects of life, including the process of dying. Conceptualizing medical implants as body-companion technologies draws attention to the multiplicity of human-technology relations that emerge in creating resilient cyborgs. These may involve reciprocal relationships of guarding and disciplining as well as one-directional interactions of domesticating. The paper thus contributes to rethinking theories on human-technology relations by accounting for technologies implanted in bodies which are often missing in STS approaches.

OWENS, Jared

Independent - Recent graduate of North Carolina State University

KNOWLEDGE, EXPERTISE, AND ETHICAL RESPONSIBILITY: PHILOSOPHICAL REFLECTIONS ON DIFFERENCES BETWEEN AUTOMOTIVE TECHNICIANS AND ENGINEERS

From the shadetree mechanic to the seasoned technician, there is one word that universally evokes frustration: engineer. Despite interfacing with the same technology, engineers and mechanics approach the scene from divergent perspectives. While Vincenti (1990) argues that engineers have a unique realm of knowledge apart from scientists, mechanics likewise possess both tacit and explicit knowledge that engineers do not. Exploring the relationship between mechanics and engineers reveals a surprisingly complex dynamic.

Differences between engineers and mechanics including how they interface with technology, what shapes their opinions on technology, and where their perspectives are framed. For example, engineers typically engage with the technology they design in an abstract and comparatively hands-off fashion. Their perspective exists within a framework provided by years of professional training and an array of considerations including regulations, safety, features, and price. Contrarily, mechanics interface with technology in an extremely hands-on manner and develop extensive knowledge about automotive theory and operation despite often having limited relevant formal education. Speaking from experience, I maintain that the mechanic's perspective is concentrated on three primary considerations: reliability, maintainability, and cost.

Of particular interest to philosophy, exploration of this interface reveals the presence of unique ethical concerns surrounding automotive repair. Beyond right-to-repair and other standard topics exist little-known ethical issues. For example, many automotive mechanics are paid on the flat-rate system, which affords compensation based on manufacturer predetermined rates for individual repairs. This system incentivizes mechanics to cut corners with obvious safety implications.

This research provides an analysis of knowledge and expertise across automotive mechanics and engineers, and will use illustrative vignettes to demonstrate differences in how each group approaches the same technology. With the advent of EV, ADAS, and AI automotive technologies, this topic will only become more important with time.

PALERMOS, Orestis S.

Cardiff University

MIND HACKS

Eavesdropping, wiretapping, snooping into one's personal belongings are disturbing breaches of privacy. But how do they compare with the possibility of having another looking into your very mind; peeking into your memories, reading your exact thoughts and knowing your innermost fears and desires? Such mind hacks would not be the typical violations of privacy people have so far worried about.

To explain where I am coming from, imagine, for argument's sake, that our minds can extend to some of the technologies we rely on, much like the Extended Mind Thesis (Clark and Chalmers 1998) suggests. If that's true, then by hacking or simply having access to mind-extending technologies, such as our smartphones or laptops, people would not just commit a violation of our privacy. They would be looking into our minds.

However, an important feature of our minds is that they are private, and this mental privacy appears to define both our psychological and social nature. You cannot know (but a tiny slice perhaps) of what I am thinking, feeling, desiring, fearing. However much you ask, beg, torture me, if I am sufficiently determined, it is in my power to keep my secrets under my hat. Being cautious, therefore, about the possibility of letting others into our minds by employing improperly designed mind-extending technologies seems to be in our best interest.

To expand on these ideas, I will first say a few things about the Extended Mind Thesis (in what sense and what may count as part of our mind?), followed by a few considerations regarding our mental privacy—are minds really private? Replying in the positive and assuming we wish to keep our minds to ourselves, I will then explain how the prevention of mind hacks requires measures that go beyond existing attempts to protect our right to privacy

PAPAGEORGIOU, Kyriaki

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Co-author: Sebastian M. PFOTENHAUER

INNOVATION UNION? HYBRIDITY, PERFORMATIVITY, AND IMAGINARIES OF INNOVATION IN EUROPEAN INSTITUTE FOR INNOVATION AND TECHNOLOGY (EIT)

Success stories about European integration have become preciously rare. One noticeable exception are science and innovation, which continue to be heralded as major success of European integration, touting a shared enlightenment legacy, tangible economic benefits, and ostensibly apolitical goals. In this paper, we analyze the evolving visions for an integrated European innovation space, using the European Institute for Innovation and Technology (EIT) and its network of "Knowledge and Innovation Communities" (KICs) as an in-depth case study. Drawing on STS literature on sociotechnical imaginaries, co-production and performativity, we discuss how EIT quickly evolved from an initial focus on emulating MIT in a European context and hybridizing existing institutional logics, to performing what European innovation is and what it should accomplish. In particular, we show how innovation was envisioned to serve as an instrument of pluralism, subsidiarity, solidarity, and harmonization reflected in corollary visions of organizing science and technology across the continent. Our paper traces how this European imaginary of innovation emerged and stabilized over an extended period of contestation – from the Lisbon Agenda's focus on linking universities to the market, to an integrative "Innovation Union" that maintains cohesion, to "Open Innovation, Open Science, Open to the World" – each reflecting how understandings innovation vary in response to, and reinforcing, broader visions of integration. Given the stark difference between the initial vision for EIT and its final form and impacts, our research underscores the importance of performativity of imaginaries in establishing and stabilizing shared spaces of innovation.

PATERAKI, Marilena

National and Kapodistrian University of Athens

CYBORG TECHNOLOGIES AND CURATIVE IMAGINARIES: TECHNO-ABLEISM IN THE CASE OF DEEP BRAIN STIMULATION

The proposed presentation, will focus on a core "cyborg" neuromodulation technology, deep brain stimulation (DBS) and the "curative imaginaries" that surround it. While DBS is considered an effective treatment debilitating the symptoms of Parkinson's disease for a period of time, its merits are often exaggerated by techno-enthusiasts. Portraying DBS as a "miraculous cure" for chronic illnesses and disabilities, techno-enthusiasm echoes what Ashley Shew calls "techno-ableism" (Shew 2017). According to techno-ableism, chronic illnesses and disabilities are inherently negative, individualized conditions, that need to be technologically "fixed" (Shew 2017). In fact, these portrayals are the building blocks of "curative imaginaries" (Kafer 2013; Clare 2017) that are actively shaping patients' expectations, promising that DBS has the potential to "give them back their lives", making them as "autonomous" as they were before the intrusion of illness.

Based on rich empirical data I gathered during my PhD research in Greece, I will develop a philosophical investigation. In the first part of my presentation, I examine the curative imaginaries associated with DBS and their relation to techno-ableism. Then I argue these imaginaries are eliding the multiplicity of relations and dependencies inherent to the implanted body-minds. Considering that the latter are "directed towards the word in a "hybrid" way" (Rosenberger and Verbeek 2015), techno-enthusiasts are not taking into account the "life of the mechanical parts", the progression of the symptoms, and the intricacies of the fusion. Finally, contrary to techno-enthusiasm, equaling DBS with patients' autonomy, I argue that "cyborg intentionality" introduced by Peter-Paul Verbeek (Verbeek 2008) can capture the key features of the experiential dimension of the implanted body-minds.

PAVANINI, Marco

Durham University

FOUR CONFLATING PARADIGMS ON HUMAN TECHNICITY

Approaches coming from different disciplines such as philosophy (Stiegler 2018), palaeoanthropology (Wrangham 2009) and cognitive archaeology (Malafouris 2013) recently converge in highlighting the pivotal role played by technics, i.e., socially embedded complexes of artefacts and techniques, within human evolution. To maintain that the ways we inhabit and interpret the world are framed by our technologies bears great influence on the collective, political imaginary concerning which models of humanity should be pursued, especially regarding which kinds of interventions—biotechnological, nanotechnological and genetic, for instance—we may wish to welcome, and which not.

In this paper, I aim to reconstruct four different philosophical perspectives on human technicity, sketching out their theoretical and sociohistorical grounds. Eventually, in the wake of Sloterdijk's (2009) analyses, I will argue for the fourth paradigm (constitutive technicity), investigating its epistemic consistency and scientific plausibility. Hence, the four paradigms are as follows:

1) Expressionism: This traditional, well-established perspective, ranging from Kapp's seminal philosophy of technology (1877) to contemporary cognitivism (e.g., Clark & Chalmers 1998), submits that the resort to technics is enabled by and added to our biology, without modifying it in turn.

2) Originary technicity: This viewpoint, elaborated by French 'poststructuralist' thinkers starting from Canguilhem (1952), states that life as such, human and nonhuman, is structured through its relation with technical alterity, that is the other-than-life.

3) Miserabilism: This approach, notably developed by philosophical anthropology (e.g., Gehlen 1940), contends that humans lack adaptation to their environment due to their incomplete biological constitution, and therefore need to resort to technics (culture) in order to survive and thrive.

4) Constitutive technicity: This perspective maintains that the human lifeform could evolve only by means of artificial selection (Moore 2017), i.e., that our biology is constantly rearranged by the technologies we adopt, structuring every aspect of our existence, phylogenetically and ontogenetically.

PENGELLY, Jonathan

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EXPLORING MORAL THEORY THROUGH MACHINE MORALITY

This paper argues that, independent of its actual technical realisation, the idea of machine morality can meaningfully advance our understanding of moral theory. It is an example of how potential technologies, even though they may never come to be, can still generate useful insights into the world as it currently is.

Following Rawls, moral theory is a distinct sub field within moral philosophy. It is "the study of substantive moral conceptions," primarily concerned with the identification, analysis, and evaluation of moral structures. Unlike the field's more prescriptive elements, it is less interested in edification than in understanding how these structures arrange the "basic notions of the right, the good, and moral worth."

Insight is achieved through a shift in our thinking on machine morality. The crucial point is recognising the potential machines hold to be morally innovative. Rather than primarily concentrating on direct comparisons with the human moral world, we must engage our imaginations, creatively hypothesising about novel conceptual interpretations and analysing their implications.

Crucially, it is the exercise itself that is valuable. It emphasises the distinction between the abstract limits of moral theory and the realities of its human instantiation. The idea of machine-driven moral innovation forces us to recognise the illusory limits constraining our thinking on moral theory. The novel moral structures it produces directly challenge the legitimacy of existing conceptual boundaries. Indeed, they represent nothing less than an alternative way to understand and engage with the world.

PESCH, Udo

Delft University of Technology

AUTONOMOUSLY DRIVING AWAY FROM MEANINGS

The promise of automation gives rise to all kinds of technical developments, with self-driving cars as probably the most captivating example. Taking practices such as driving from the hands of humans and giving these to smart machines implies that these practices are moved from the realm of meanings to the realm of causes and correlations. With that I mean that humans engage in their driving activities by bestowing meanings upon particular situations, while algorithmic machines make decisions based on causal inferences and statistical patterns.

The hermeneutic nature of sociotechnical practices and its relevance are often neglected, as there is a tendency to perceive autonomous driving as a manifestation of the notorious trolley problem. In such analyses, problems are separated from their societal and hermeneutic contexts, and seen as the mechanical reproduction of ethical positions. This allows (rather speculative) discussions about how to program an autonomous vehicle, but steers away from the more fundamental debate about the question whether it is desirable to pursue such forms of automation.

Such a debate is necessary because the moral fabric of our social interactions are based on hermeneutic principles, in the sense that our intentions are constituted by the meanings that we associate with actions. The validity of intentions is checked by holding actors accountable for their decisions. With that, socially constructed meanings and individual intentions are effectively related to each other.

An additional complicating factor here is that trajectories of innovation tend to be irreversible. This suggests that once a technology has become successfully adopted by society, it will be hard to change retrace ones steps, even if profound moral issues emerge.

PETERSON, Martin

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WHAT DO TECHNICAL FUNCTIONS SUPERVENE ON?

Technological artifacts have a dual nature: a material base and functions that depend on their intentional history, in particular their intended use. In their excellent paper "The ontology of artefacts: the hard problem" Houkes and Meijers (2006) cast doubt on the claim that the nonmaterial features of an artifact supervenes on its material base. They correctly point out that many versions of the supervenience thesis are unable to account for the following two-way underdetermination condition:

"Underdetermination: An adequate ontology of artefacts should accommodate a two-way underdetermination between artefacts and their material basis: an artefact type, as a functional type, is multiply realizable in material structures or systems, while a given material basis can realize a variety of functions." (2006:120)

The purpose of this talk is to articulate a supervenience thesis that is compatible with the two-way underdetermination condition. The supervenience thesis I propose is local (as opposed to global) but can be either weak or strong. The problem with the analysis proposed by Houkes and Meijers is that they, inspired by how supervenience is discussed in philosophy of mind, only consider supervenience claims holding that *all* nonphysical features are higher-order properties that supervene on a single (but possibly very large) set of physical features. However, for technical artifacts the following supervenience claim is more plausible: (i) The higher-order property, the thing that supervenes, is a set of technical functions, and (ii) these technical functions supervene not just on the material features of a particular artifact, but on two distinct sets, namely (iii) the material features of all artifacts that instantiate the functions (in our world if the supervenience is weak, or in all worlds if the supervenience is strong), and (iv) the intended use and other intentional facts of all artifacts that instantiate the functions (in our world if the supervenience is weak, or in all worlds if the supervenience is strong). This supervenience thesis, let us call it "dual-basis supervenience", is not circular and it is not trivially true or uninformative. It also satisfies the two-way underdetermination thesis. Because Houkes and Meijers do not include intentional facts in the supervenience base, bottom-up underdetermination (a given material object can have many functions) is not possible for them. However, by adding certain nonmaterial facts to the supervenience base two-way underdetermination is possible. Interestingly, dual-basis supervenience also opens up the door for intermediate positions between weak and strong supervenience: "half-strong" supervenience holds whenever functions supervene strongly on one base-set but weakly on the other.

Reference: Houkes, W., & Meijers, A. (2006). The ontology of artefacts: the hard problem. Studies in history and philosophy of science part A, 37(1), 118-131.

PIRTLE, Zachary

Independent Researcher

Co-authors: Claudia ECKERT, Rémi GANDOIN, Nina JIROUSKOVA, Michael POZNIC, Beth-Anne SCHUELKE-LEECH, Martin STACEY, Loretta VON DER TANN

KNOWLEDGE FOR PRACTICING ENGINEERS AND PHILOSOPHERS: RECONSIDERING WALTER VINCENTI'S WHAT ENGINEERS KNOW AND HOW THEY KNOW IT.

In 1990, the historian and aerospace engineer Walter Vincenti wrote What Engineers Know and How they Know It? which remains well-known in the history and philosophy of engineering. Vincenti argues that engineers develop unique categories of knowledge that are sometimes overlapping, and sometimes clearly distinct from the sciences. The book's legacy is prominent but mixed: while Vincenti's work is widely cited by policy and philosophy scholars as a reference on the nature of engineering (Houkes 2009, Kant and Kerr 2018, Zwart forthcoming, McKelvey and Saemundsson 2018, Nelson et al 2018),few engineers build upon his work. Arguably, there has not been a comparably deep book focused on engineering knowledge since Vincenti.

We will review Vincenti's categories of knowledge drawing upon both engineering and philosophical perspectives, touching on what seems plausible and useful from these views. We represent an interdisciplinary group, consisting of practicing engineers, engineering and design scholars, and researchers in philosophy of science and engineering. We will summarize Vincenti's key claims about categories of engineering knowledge . Importantly, we will highlight how Vincenti's research was strongly shaped by the work of Thomas Kuhn's and Rachel Laudan's work on scientific paradigms. We will also explore avenues to reassess the current validity of Vincenti's knowledge categories. We agree with some critiques of the conceptual haziness associated with some of Vincenti's knowledge categories, including his idea of design instrumentalities, and will discuss ways to improve them, touching on mathematical, design, and engineering knowledge. We also question to what extent computer modelling and simulation might create new forms of engineering knowledge, playing a crucial role beyond physical testing that Vincenti discusses.

For practicing engineers, something still resonates in what Vincenti is saying and the discussion on knowledge categorizations opens interesting avenues to explore improvements of current frameworks about how engineering works. It invokes reflections about the way "knowledge" relates to the current challenges of horizontal and vertical integration related to engineering (Barrella and Watson 2016); as well as about the value of engineering in multidisciplinary work environments.

We will conclude by considering ways in which deeper study of engineering knowledge might be important to engineering practitioners, including studying which types of knowledge might be more useful in developing new engineering systems (Pirtle and Moore 2019).

PONCHON, Thibault

Université Grenoble Alpes

THE IMAGINARY OF DIGITAL SOVEREIGNTY: THE FRENCH NATIONAL QUANTUM PLAN

Quantum technology represents an emerging field in which Nation states and digital giants are investing significant resources. Even though Shor's algorithm raised concerns about cybersecurity, quantum computation and communication generate promises of a new technological revolution. Information and communication technologies are now so deeply linked to the notions of national powers and security that mastering these technologies is becoming a growing preoccupation. Quantum technologies (QT) are considered as having the potential to be a "game changer" in geopolitical relations and economic competitiveness. Terms used to anticipate the impact of these technologies relate exclusively to the language of domination (as encapsulated in the role of “quantum supremacy” in achieving “digital sovereignty”).

QTs development is embedded in the imaginary of sovereignty. Then, political organizations imagine different futures for QT, depending on how they conceive their authority and political role. In this presentation, we will focus on the imaginary of digital sovereignty promoted by the French State in its recently launched national quantum plan.

By being the “first client of quantum”, French government expects to become a leader in every application of these technologies and develop complete and autonomous production chains ranging from design and manufacture to users. We argue that, with this plan, French government re-endorse a long-standing approach of steering research and innovation. We will show how the design for this plan echoes France's past experiences with computing technologies, such as the “colbertism” of the Plan Calcul in the 60's. However, the elaboration of this plan is challenged by alternative visions about QT, autonomy and sovereignty. In this perspective, we will present the visions of research and industry players present at the Grenoble technological center where we are conducting a qualitative study.

POPA, Eugen Octav

Wageningen University and Research

Co-authors: Vincent BLOK, Renate WESSELINK

THE PROCESS OF VALUE CO-CREATION IN THE HYDROGEN INNOVATION SYSTEM

The democratization of science and technology through stakeholder inclusion is a staple topic in theories of responsible innovation and ethics of technology. The theory of quadruple helix innovation has recently joined this democratization movement by highlighting the need for civil society, industry, academia and policy (the four 'helixes') to collaborate and co-create innovation products and structures (Carayannis and Campbell 2009, 2010, 2014). In this, the theory is assuming a stakeholder-analytical approach to the study of technologies where groups having a certain identity, or individuals having a certain title, collaborate and 'co-evolve'. In this paper we take an alternative processual approach according to which the four helixes are not groups or individuals, but inter-dependent yet distinct processes of value co-creation. The advantage of this processual approach is that the analysis focuses on how the actual course of technological innovations relate to the four value systems stemming from by each helix (Popa et al. 2020). Philosophically, such an approach is based on an understanding of helixes as being in a state of agonistic pluralism (Mouffe 2000; Mouffe et al. 2013). But the process of value co-creation has to date remained an abstract phenomenon without clear correspondence in the practice of technological innovation. How does value co-creation look like 'in the wild', where must one look for it and how can this process be reconstructed? In this paper, we tackle these process-analytical problems and illustrate solutions by analyzing a current debate between proponents of alternative innovation pathways for decarbonizing industry: the green hydrogen vs. blue hydrogen debate. Using qualitative methods of desk research, interviews and participatory observation, we apply a set of tools for the identification and reconstruction of value co-creation in a processual quadruple perspective.

POSSATI, Luca

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TECHNOLOGY AND ALTERNATIVE FUTURES

The core hypothesis of this paper is that neuropsychoanalysis provides a new paradigm for artificial general intelligence (AGI). The AGI agenda could be greatly advanced if it were grounded in affective neuroscience and neuropsychoanalysis rather than cognitive science. Research in AGI has so far remained too cortical-centric; that is, it has privileged the activities of the cerebral cortex, the outermost part of our brain, and the main cognitive functions. Neuropsychoanalysis and affective neuroscience, on the other hand, affirm the centrality of emotions and affects—i.e., the subcortical area that represents the deepest and most ancient part of the brain in psychic life. The aim of this paper is to define some general design principles of an AGI system based on the brain/mind relationship model formulated in the works of Mark Solms and Jaak Panksepp. This paper is intended to be an original contribution to the discussion on AGI by elaborating positive arguments in favor of it.

POZNIC, Michael

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UNDERSTANDING TRANSPORT SYSTEMS: DIFFERENT PERSPECTIVES ON THE COLOGNE SUBWAY SYSTEM

Transport systems are complex socio-technical systems. Some of them operate on a regional level such as public transport systems. Others operate on a global level such as shipping of goods via containers. The Cologne subway system is an example for the former kind. One can distinguish three groups of people in that system that need different types of understanding: i) The designers of the system should at least partially understand how it works. If the system is divided into sub-systems, then some designers may have a comprehensive understanding of the interconnectedness and functionalities of the parts of such a sub-system. ii) People working within the system need other capacities in order to do their work in a sufficient manner. Here, constructors of the system may be considered, but also actors that support the maintenance or the on-going services of the system. The understanding of both groups is a type of understanding how something works, but their understanding differs. iii) Finally, users of the system need an understanding of the system that is again different than the understanding of the two other groups. They understand the Cologne subway system if they can give reliable guidance on the effective use of the system. So far, it is rarely discussed in philosophical debates on understanding that different perspectives of epistemic agents correspond to different types of understanding. The general philosophical approaches to understanding are either labeled as explanatory understanding or objectual understanding. Explanatory understanding comprises the understanding why something is the case, whereas objectual understanding is seen as the understanding of a subject matter. Our paper argues for the recognition of technological understanding as an example of a family of types of understanding that is not clearly attributable to either of the two mentioned ways to conceptualize understanding.

POZZI, Giorgia

TU Delft

X AI IN HEALTHCARE AND EPISTEMIC AUTHORITY'S INFRINGEMENT: CONCEPTUALIZING EPISTEMIC INJUSTICE

In my presentation, I shed new light on the relation between opaque medical AI systems and the epistemic authority of clinicians. To achieve this aim, I apply the concept of epistemic injustice coined by Miranda Fricker to the assessment of the impact of automated decision-making systems. I argue that cases of epistemic injustice occur as the consequence of an epistemic imbalance existing between authoritative doxastic agents (physicians) and epistemically opaque medical AI systems providing diagnoses and treatment recommendations. Said imbalance is due to the inscrutability of the AI system, which renders its outputs particularly difficult to be challenged by the physician. Consequently, the clinician finds herself in the position of not being able to make well-informed decisions for which she can consider herself fully epistemically responsible. Furthermore, she is also not able to contend decisions carried out by the medical AI. The problem of epistemic imbalance I analyze prevents physicians from meaningfully engaging in their patient's enquiry. I shall claim that these epistemic dysfunctions genuinely constitute a form of epistemic injustice. I further argue that explanation should be strived for as the only epistemic desideratum able to provide human knowers with the cognitive state of understanding why a system came to a particular conclusion. This is necessary to overcome the epistemic imbalance previously mentioned. Moreover, I claim that other epistemic goods like accuracy of predictions and classifications are not able to promote the particular form of understanding needed to avoid cases of epistemic injustice and, as such, cannot substitute explanation.

PRINTZ, Jacques

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TECHNOLOGY AND EXPECTATION: SHOULD WE FEAR THE UNPREDICTABLE? (PANEL)

What we expect from technology is now embedded in what we call systems, and to paraphrase L. von Bertalanffy: We are surrounded by systems, everywhere around us, in his book General system theory. This is a major evolution in the way our knowledge progresses since the birth of this "system approach" under the initial impulse of the mathematicians John von Neumann and Norbert Wiener, during World War II. In fact, this is rather a revolution than a simple evolution, what we call a bifurcation, a new way to understand and act without precedent.

The core of the new approach is information, the way to organize and integrate various elements and/or equipments to build something completely new, an open system able to interact with its environment, whatever it is, for example human. Terms like Information systems, Information engineering became common in the 1980's.

The real novelty of information is that it is something basically immaterial, created by humans, which needs a medium to be expressed and engineered. This medium, also completely new, is what has been called Programming, a human activity aiming to construct programs using various kind of programming languages, the so called Software. Before WW II the number of programmers was strictly zero, now there are millions writing billions of hugely complex lines of code they do not always control. One of the problems with software is that it contains errors resulting from this new human activity called programming. Human errors can be individual or collective, because programming is a social activity among large groups of engineers and computer scientists, including users, and the short history of programming shows us that they are unavoidable. Errors can be in the data and/or the algorithms of programs. We can correct them when discovered, but we can't eradicate them.

Presence of errors introduces unpredictable behavior of the system, and in this type of situations the system must be stopped, before a catastrophe occurs, especially if the system is at risk. Thus, errors are the major problem of the information technology especially for a trustworthy AI. The aim of this panel is to offer an overview of this new problematic and possible technical, ethical and legal solutions if, as von Neumann said: "we want to survive technology", because error is everywhere in information and we have to take it seriously.

PRINTZ, Jacques

Catholic University of Lille

HOW UNPREDICTABLE IS UNPREDICTABLE? TAMING THE COMPLEXITY

The unpredictability of computerized systems is generally not where we think it is, either in the usages or in the behaviors. At the beginning of this technology, at von Neumann and Turing time, the engineers thought that these machines could never work for reliability issues. Never in the history of techniques one had assembled so much components to build one system. Budget given to Turing for its BOMBES electromechanical engines were cut by those which didn't understand them; he was obliged to write directly to PM Churchill to save it. Nobody had foreseen that computers will play a key role to manage the big data of the genomes, and that a new discipline, the bio informatics, will appears. On the other side, some others dream to the possibility of an autonomous robots army could fight against their creators, despite the fact that just cutting the power will stop the game.

However, the unpredictable still exists. It lies in the systems complexity and in the hidden remaining residual errors leading to catastrophic behaviors. Titles such as Software hall of shame, IEEE Spectrum, Septembre 2005, are common since more than 30 years. It is this invisible face of unpredictability that we want to explore in this communication.

RANSOM, Tailer

Georgia Southern University

DIGITAL FIELDS AND THE PHENOMENOLOGY OF THE PHANTOM TECHNO-SOCIAL PROSTHETIC

In this article, I develop an account of the phantom techno-social prosthetic through a phenomenological analysis of the loss, cessation, or interruption of access to the technical media, which open unto a shared digital field of engagement. This approach will draw on Merleau-Ponty's analysis of the phantom limb as a lack which appears in the frustrated habitual movement into the world—grasping with a hand which is no longer present. How does the techno-social prosthetic, and its absence, inform our understanding of expressive, embodied engagement generally? How, also, does it affect our understanding of the existential field in which we engage?

I argue that this analysis of the phantom techno-social prosthetic demonstrates the way that expressive agency is constituted, not simply through the transaction between body and instrument, but through the broader dynamics of the existential field which the this very prosthetic instrument opens up. That is, the movement which habitually reaches with an absent prosthetic not only experiences the lack of appendage, but a whole field of meaning. This will lead us to some remarks about the distinctive features of digital fields of engagement.

RANTALA, Juho

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Co-author: Outi KORHONEN

VALUE AS POTENTIALITY –BLOCKCHAIN AND THE AGE OF INSTITUTIONAL CHALLENGES

Alongside and reflecting pragmatic understanding of value creation (as e.g., rents, profits, new innovations), we raise value creation on the ontological level. The key elements are enabling new thinking and new ways of organizing. On this level value raises out of a system of relations (e.g., Graeber 2001).

One of the key innovations of the 2000s, blockchain technology (e.g., Bitcoin, Ethereum), have created and can create value in many senses of the term. However, its key contribution to value derives from the philosophical qualities of a blockchain fostering openness and decentralization (Bambara & Allen 2018). Blockchain systems have challenged traditional market institutions and the monetary system. But confined to its "mainstream" uses in private systems, blockchains function to boost the efficiency of corporate entities, producing value in its traditional monetary sense and reinforcing automatized functions of global value chains. Thus, the ontological value potentiality of blockchain remains trivial.

Blockchain's essential potential as a value creator lies in its possibility to create a medium for "transindividuality" (Rantala 2019; Simondon 2017; 2020). This transindividual medium organizes multiplicity of potentials together in people's hands joined through decentralized platforms. The platform enables a hermeneutic loop in which one keeps revisiting the axioms and ideals (such as community, communication, culture, market) and criticizing them to reconceive value/s. The value of blockchain is precisely this ability, as a decentralized technical medium, to house transindividual potentialities leading to individual and collective fulfilment.

Taking into account the fundamental structure of the global market economy as a legal and socio-psychological construction, the above potentialities have a profound societal, cultural and economic effect. Thus far the global legal structures (e.g., Kennedy 1987) have been strongly biased in favour of creating centralized – and usually exclusionary – authority structures and archives (Derrida & Prenowitz 1995). The many economic functions around entering, gatekeeping, auditing, verifying and rendering binding decisions on the official data has bolstered the establishment of global financial and power centres that accumulate rather than share. Through emerging technologies, these functions are decentralized, which could lead slowing or even reversing such accumulation.

RANTALA, Juho

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Co-author: Jaana PARVIAINEN

CHATBOT BREAKTHROUGH IN HEALTH CARE ALONG THE COVID-19 PANDEMIC: ETHICAL REFLECTION ON AUTOMATED CONSULTATION IN CLINICAL PRACTICES

The emergence of the COVID-19 as a global pandemic has significantly advanced the use of existing health-oriented chatbots in the diagnosis and treatment of coronavirus infection. Chatbots have being used as a conversational and consulting interface to answer questions, check symptoms, recommend care options and complete tasks such as booking appointments. Still, many medical experts have emphasized that chatbots are not mature enough that they could technically diagnose patient conditions or replace health professionals' judgements. In this paper, we consider how the emergence of task-oriented chatbots as partially automated consulting systems influence on the autonomy of health professionals and the nature of clinical practises. We approach the topic from the perspective of professional ethics by considering professionals' relation to patients and their changing position on health and medical assessments. Based on findings of the recent empirical studies of health chatbots, we suggest that new approaches in professional ethics are needed, as the large-scale deployment of algorithm-driven systems potentially revolutionize professional decision-making and client-expert interaction in health care organizations. We argue that implementation of chatbots amplify the project of rationality and automation in clinical practice and alter traditional decision-making practices based on epistemic probability and prudence. When health organisations have intensified collaboration with the technology industry due to the COVID-19 pandemic, presumably, the role of technology companies as health service providers will also increase. This paper contributes to the discussion on the ethical and political challenges posed by chatbots from the perspective of healthcare professional ethics.

REID, Colbey

Columbia College Chicago

UNHOMELY TECHNE

The unheimlich is not typically considered a seminal posthuman construct, but the word into which it is most translated, uncanny, has been appropriated by Silicon Valley to indicate the threshold at which human likeness in a machine ceases to be aesthetically and emotionally appealing. Even in Freud's hands, the term unheimlich was associated with things like dolls (automatons), doubles (clones), repetition (algorithms), and animism (the IoT), and seemed to concern these artifacts' capacity to transform intimate spaces like windows, stairways, kitchens, and children's playrooms into markers of the extra-human. For Freud, this capacity was the result of western civilization's repression of certain primitive attributes of the human as incompatible with technological modernity. They may have been repressed, but they did not go away; technology did not banish the human, but it did drive certain aspects of it underground (which is why heimlich, the root of the term with which we are here concerned, can mean both intimate and homelike and concealed and withheld at the same time. The attributes in question include: relationality (our tendency to connect intimately with things in ways that enliven them, or automatism and animism); storytelling (our tendency to seek meaning in the world, which the world seems to encourage and support through synchronicities, or repetition); and anthropomorphism (our tendency to interweave ourselves with otherness in order to mirror and then connect with it, or doubling).

In general, unhomely techne are older, less fashionable, fully domesticated mediation devices through which we seek connectivity, meaning, and relationality with the organic and inorganic environment. Specifically, unhomely techne are conventionally non-technical things doing profoundly posthuman work, like fashion, cosmetics, ornaments, cooking, children's stories, pets, and brands; they are also old-fashioned/homebound technologies ignored in the conventional posthuman spaces of nanotechnology, biotechnology, information technology, and cognitive science, such as robots, televisions, movies, prosthetics, and clones. Various theorists of posthumanism have noted the philosophical thrill and exhilaration gained from examining posthuman artifacts and entities, writing of the sense of accessing something completely alien and "outside the box" of the human in doing so. This paper uncovers the concealed and withheld component of certain domestic objects to make them unhomely (e.g. render them unheimlich) in spite of their familiar banality. Ultimately, they may seem even stranger than the ordinary grouping of posthuman entities and objects that wear their difference from us on their sleeves. What is the secret, one might wonder, of these things that have something to hide?

REIGELUTH, Tyler

Catholic University of Lille

IMAGES, TECHNICS AND IMAGINATION IN GILBERT SIMONDON'S PHILOSOPHY (PANEL)

This panel aims to explore the links between technics, images and imagination in the philosophy of Gilbert Simondon, and especially in his course Imagination and Invention (1965-1966). As early as On the Mode of Existence of Technical Objects (1958), the philosopher questioned the traditional opposition between culture and technics by showing that technical objects are crystallizations of human activity and express cultural significations. A few years later, in Imagination and Invention, he bolstered this claim: what is at stake is not only recovering the cultural signification of technical objects, but also understanding the role of objects (esthetic, technical, prosthetic) as images, culturally embedded in the collective and psychic life of individuals.

Simondon thus claims that "images" are "vehicles of experience and knowledge" circulating between subjects and their milieu and act as "intermediaries between the past and the future". Images are "mentalized" by the subjects as memories, through the process of imagination, and materialized as objects through the process of invention. This "cycle of images" thus invites a radical reappraisal of metaphysical oppositions between imagination and technics, ideality and materiality, intelligibility and sensibility, transcendental and empirical. Indeed, according to Simondon himself, the "image-objects" or "object-images" are situated "halfway between the objective and the subjective", they are "intermediary realities between the abstract and the concrete, the I and the world": they are phases of a dynamic process which goes from memory to invention, as it moves through perception and imagination.

We will try to explore Simondon's approach in order to reconsider the relation between technics and imagination in ways that do not reduce the former to its objectivity and the latter to its subjectivity. We will see how imaginaries are embodied in the objects and technologies and how the digitalization of images affects the imaginative capacities, at a time when the "phantomatic power" of images has spread with the ubiquity of screens.

REIGELUTH, Tyler

Catholic University of Lille

IMAGE AS THE EXPERIENCE OF TECHNOLOGY

Given its keen attention to the detail and diversity of technical realities, Simondon's philosophy of technology is often presented as object-oriented. While this is certainly true to some extent, I would like to mobilize his work in Imagination and invention to show how he offers a broader and more culturally embedded reading of technology that can be understood as complementary to his more object-oriented approach. Indeed, his image cycle theory provides the basis for understanding technical reality as a coupling between objects and behaviors, structures and operations, that evolve through phases of "anticipation" (the expectations of experience a certain coupling offers), "experience" (a problem or incompatibility encountered in the coupling) and "systematization" (the invention of a new compatibility between object and behavior). When articulated to critical sociology, this theory invites a framing of technology as habitus-(trans)forming. The individual (embodied) and collective (instituted) nature of these imaginal realities, can provide a strong basis for developing alternatives to the contemporary cult of "innovation".

REIGELUTH, Tyler

Université catholique de Lille

COMING TO TERMS WITH MACHINE LEARNING BIAS

As machine learning applications have spread rapidly across a vast array of domains and social practices, often producing unexpected or troubling effects, many ethical debates surrounding their deployment and use have focused on the bias question: how is it that algorithmic systems are biased? This question can be understood both technically and ontologically: through what operations do algorithms learn and produce biased outputs? And how can a technical object even develop something like bias? This contribution will address these questions by taking an alternative route and suggest two main points: a) if we actually expect algorithms to learn, we should not be surprised that they develop biases; b) machine learning biases might perhaps be better understood as a form of social reproduction whereby social biases are staged in technical performances. When held together, these two points can help renew ethical debates around machine learning and provide useful means for engaging with engineering communities.

REMMERS, Peter

Technische Universität Berlin

DOING PHILOSOPHY THROUGH ETHICAL DESIGN OF TECHNOLOGY: DIRECTED IMAGINARIES AS TOOLS FOR INTERDISCIPLINARY COLLABORATION

Ethical design of technology, construed as an intervention into processes of technological research and development, promises an unprecedented scope of influence for philosophical ethics of technology. If philosophers and ethicists find ways to engage directly in the design process of technologies, their work may go beyond critical comments on technology after the fact or to schematic applications of ethical principles to given states of affairs. Instead, "ethics on the laboratory floor" creates the vision of a constructive collaboration between philosophical ethics and technological development.

But there are a lot of unanswered methodological questions. Ethical design of technology is intended to be different from applied ethics; moreover, if ethical design promises opportunities for philosophical and ethical work as a creative practice, it cannot confine itself to consequentialist cost-benefit analysis or dogmatic problem-solving. But this situation creates the challenge to point out the philosopher's contribution to the engineer's endeavor while sidelining the latter's common categories and goals.

Technological imaginaries can work as design tools for bridging this gap, for example by serving as shared objects for interdisciplinary discourse. However, the process of imagination needs direction to facilitate the design perspective and highlight the relevant philosophical & ethical aspects. In my contribution, I take up several strands from recent research to methodologically shape imaginaries as tools for ethical design. Accordingly, I argue for a synthesis of epistemological reflections (to acknowledge forms of knowledge distinct from factual knowledge), structural ethics (to clarify moral factors of technological artifacts), and critical perspectives (to highlight the limits of technology and issues beyond).

RESSEGUIER, Anais

Trilateral Research

ETHICS AS ATTENTION TO CONTEXT: RECOMMENDATIONS FOR THE ETHICS OF ARTIFICIAL INTELLIGENCE

Current ethics guidance documents and initiatives for artificial intelligence (AI) tend to be dominated by a principled approach to ethics. Although this brings value to the field, it also entails some risks, especially in relation to the abstraction of this form of ethics that makes it poorly equipped to engage with and address deep socio-political issues and the material impacts of AI. To respond to this challenge, this presentation proposes to complement the existing principled approach with an approach to ethics as attention to context and relations. It does so by drawing from alternative ethical theories to the dominant principled one, especially the ethics of care or other feminist approaches to ethics. It also encourages the inclusion of social sciences and humanities in the development, deployment and use of AI, as well as in AI ethics. It concludes with a series of practical recommendations.

REYES, Patricia

University of Twente

"Loading New Worlds" - Creative Uses of Digital Media to Conceive Post-Anthropocentric Societies

If fear of the inevitable collapse of our social, economic, and eco- systems was already looming in popular culture, 2020 was the year that shoved popular discourse around a quasi-apocalyptic reality. The last edition of TheOverkill.nl, a digital culture festival, took this fear of total collapse as its theme to explore how it translated into digital artworks. As the curator for this festival's symposium, I was interested in learning how different uses of digital media were helping people cope with feelings of impending doom, offering technological imaginaries on how to reorganize society through collapse.

The symposium, which we called 'Loading New Worlds,' established a conversation with four creators: a Virtual Reality designer (UK), a video game developer (Tiohtià:ke), a filmmaker (Indonesia), and a digital activist (US), all engaged in projects that grapple with an adverse present and conceive brighter futures. Their targets were respectively immersive experiences of the senses of non-human species, the rewriting of the first contact between indigenous peoples and settlers, kinship with pests like cockroaches, and the decarbonization of society.

My paper details the findings from this conversation, which suggest that these four cases of creative use of digital media exemplify art-technology worldlings of a 'post-anthropocentric society.' My analysis begins by tracing the meaning of 'anthropos' in each creator's context. Then, I describe how their work helps them fracture anthropocentric paradigms, generating opportunities for creators to communicate alternatives on how to move forward through the ongoing social and ecological crises. Outlining these art-technology worldlings, I finally argue that creative uses of digital media can be valued for their potential to conceive and materialize possible assemblies among humans and non-humans entities.

RIJSSENBEEK, Julia

Wageningen University and Research

Co-authors: Zoë ROBAEY, Vincent BLOK

CELL FACTORIES AS METABOLIC SYSTEMS: TOWARDS AN ONTOLOGY OF HYBRIDS

How can we move beyond traditional categories and open up an ontological space for hybrids? Synthetic biology brings forth hybrids, objects that show characteristics of both machines and organisms, objects like 'synthetic organisms' or 'living machines' (Deplazes & Huppenbauer 2009). While hybrids open up an ontological space of degrees, the problem of hybrids is that we still often put them in one of the existing categories (organism vs. machine, alive vs. not alive, natural vs. artificial). We will concentrate on the question how to properly conceptualize one prominent class of synthetic biology hybrids, namely cell factories. By analyzing how these hybrids are framed in the scientific field, we uncover underlying ontological assumptions about cell factories and we move beyond the 'general' level of abstract, theoretical discussions on hybrids. For this we focus on the framing of metabolism in the scientific field and contrast it with the framing in (philosophy of) biology. We find that in the synthetic biology literature, the machine-like aspects are more emphasized than their organism-like aspects. This dominant framing is problematic, not in the least because these hybrids escape the machine concept. We will conclude by proposing the metabolic system as an alternative conceptualization for the cell factory. While the conceptualization of the cell factory as a machine cannot account for the degrees that define the hybrid, the metabolic system can.

RITTER, Martin

Institute of Philosophy of the Czech Academy of Sciences, Department of Philosophy of the University of Vienna

"NO IMAGINATION WITHOUT INNERVATION": BENJAMIN ON TECHNOLOGY AND IMAGINATION

My talk turns back to Walter Benjamin, who offers a distinctive reflection not only on imaginaries as intertwined with, and preformed in, technologies but also on technologically mediated imagination as enabling human (revolutionary) "harmonization" with a technologically mediated social world. Benjamin's late thought focuses on the new artform of film, made possible by the technology of camera, since film enables to de-construct what seems natural in society and to show, or re-construct, its new – technologically mediated – nature. Already in his early writings, Benjamin conceived of imagination as a transformative power able to reveal the (sur)real "face" of the world. Thanks to the camera and the constructive method of montage, film puts imagination in practice even more powerfully. Benjamin concentrates on images and figures created by film, such as Mickey Mouse or Charlie Chaplin. But, film is important not only because it creates new realities. More essentially, it is instrumental in acquiring new sensibility. Film achieves this by re-configurating imagination, understood not as an "artificial" faculty of fantasizing but as a "natural" faculty, albeit evolved or enacted, helping humans to understand new (social) nature. Thanks to the camera and montage, film empowers people to experience in a socially appropriate way, thus making their experience, potentially, politically effective. In this way, the particular technology of camera helps people to appropriate, or as Benjamin himself says "innervate", the general social "apparatus" as conditioning (Benjamin's) contemporary world. My presentation intends to demonstrate that Benjamin's specific concept of technology as the mastery of human-nature relation can be inspiring for our current rethinking technology and human experiential relation to it.

RIVIÈRE, Pascal

Insee

IMPERFECTION OF DATA, LIMITS OF TECHNOLOGIES

In a digital world, it now seems difficult to build technologies without relying on data. They seem to be self-evident, as a basic material.

However, data can't be seen as "the truth", they are not an indisputable reference: data do not exist in nature, they result from a production process. And this process itself is anything but obvious : it relies on conventions (standards, classifications, repositories), it requires choices, which are not necessarily shared by the main actors. If the initial source of information comes from a data entry, nothing ensures that the underlying semantics are well-known and clearly explained to the operators. If initial data come from automatic processing (sensors), it relies on conventions, models for the algorithms that transform raw data into useful data, rules for identifying and correcting outliers, and regular and organized monitoring of malfunctions. If data are the result of an interaction (in the case of a survey), questionnaire design, data collection modes, interview monitoring, can introduce biases, if we pay attention to them.

Thus the presence of possible errors is consubstantial with the data: poor design, false interpretation, unclear classification, etc. They also come from differences in perception and usage among users: paradoxically, one can have errors in the data without anyone making a mistake.

When dealing with technologies, the risk would be to deny or neglect this issue, treating it as a minor problem that can be easily corrected if one "works well". However, as we have seen with the biases of facial recognition systems, mistakes teach us a lot about our own assumptions and reveal some of the limitations of technologies.

RODIGHIERO, Dario

Harvard University

A HERMENEUTIC VIEW ON THE SOCIETY FOR PHILOSOPHY AND TECHNOLOGY

According to Don Ihde, hermeneutic relation allows humans to interpret the world through its representations. Among all the representations, one specific technology is increasingly employed to visually describe human behaviors, it is data visualization. Data visualization can reduce human behaviors into visual representations to give an overall view on specific phenomena in what Franco Moretti calls distant reading.

Scientific conferences are events whose complexity is often simplified through a palimpsest. The current pandemic leaves room for new instruments to understand conference organization using digital means. This presentation is about an innovative visual method to represent conference speakers, making use of artificial intelligence to calculate and display the lexical similarity that exists between them; the more two speakers are close in the space, the greater their language is shared.

The case study concerns the speakers of the Society for Philosophy and Technology conference. Their proposals are computed using text analysis, extracting the most relevant tokens, or keywords, that characterize each proposal with respect to the sum of all the proposals. These tokens are then transformed into network relations to establish one-to-one connections between the speakers. Finally, speakers are arranged in a network visualization available on the Internet as a web-based application. The visual model recalls word clouds as its appearance is characterized by tokens that vary in size according to the relevance and recalls topographical maps as elevation contours identify the most significant areas.

In a moment in which conferences went online, conference mapping is a solution to orientate the attendees in a relational space completely detached from the physical one, inaccessible due to the virus spread. The SPT scientific community can now look at itself through a hermeneutic lens, and reflect on its own representation.

ROMELE, Alberto

IZEW, University of Tübingen

Co-author: Wulf LOH

TECHNOLOGICAL MEDIATIONS AND BODY CONSCIOUSNESS: THE CASE STUDY OF LOUISA

Pragmatist philosopher Richard Shusterman (2008) has observed that while in the 20th century many philosophers have rehabilitated the body and the body-mind connection, the great majority of them has still argued that our body functions best when our mind ignores it. Following Dewey, he has insisted on the fact that, if opportunely oriented, bodily consciousness can bring to forms of bodily pleasure and existential happiness in all sorts of daily situations.

In this presentation, we propose to import Shusterman's "somaesthetics" in the philosophy of technology, and more specifically in postphenomenology (Ihde 1990). In particular, we want to introduce the notion of "I-technology-I" relations, that is, technological mediations that give access to the self-world. We also want to insist on the capacity of some technologies to promote "imaginative variations" (Ricoeur 1991, 301) that can eventually improve bodily awareness.

The presentation is structured in two parts. In the first part, we theoretically articulate somaesthetics and postphenomenology. Both disciplines need some adjustments, as a) somaesthetics tends to oppose technology, and b) postphenomenology has sometimes neglected the reflexive consequences of technological mediations and their imaginative potential. In the second part, we show how we are applying these theoretical reflections to the ethical question of measuring – and thereby objectifying – bodily pain. As a reflection point, we use the technology development project LOUISA (BMBF), in which a digital tool for the automatic detection of pain in movements is built.

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ROMELE, Alberto

IZEW, University of Tübingen

Co-authors: Dario RODIGHIERO, Marta SEVERO

ARTIFICIAL INTELLIGENCE STOCK IMAGES: QUALI-QUANTITATIVE ANALYSES FROM THE SHUTTERSTOCK CATALOG

Stock images are pre-produced images made available for license by paying a royalty to both the artists and the agencies that manage them. Researchers have generally paid little attention to these images, which are often seen as nothing more than the “wallpaper” of our consumer culture. Stock images are often ridiculed as blatantly fake and as just clichés. And yet, they deserve to be studied as they play a central role in shaping the visual world we inhabit.

In this presentation, we contend that stock images of AI play an important role in shaping the visual communication of scientific and technical innovation of AI. We will follow the hypothesis according to which these images do not have to do with the representation of the "thing themselves," but rather with the expectations, fears, and hopes, that is, the technological imaginaries about AI despite its “black-boxness.”

The presentation will be developed in two parts. In the first part, we will propose a general theory of visual representations of AI and we will talk about the specific case of stock images. In the second part, we will analyze a case study, namely the Shutterstock catalog. Shutterstock is one of the largest players in the stock image market. The Shutterstock search engine (https://www.shutterstock.com) is currently (January 2021) returning 3,358 images for the "Artificial Intelligence" query. We will conduct a quantitative analysis on all these images based on the metadata and keywords associated with each image. The data will be processed through data mining and visual data mining techniques. The aim of this analysis will be to propose a classification of these images according to genres and typologies which will then be used to more qualitatively constitute a cartography of the imaginaries of AI.

RONSSE, Renaud

UCLouvain

PERSONALIZED PROSTHESIS OR PROSTHESIS AS PART OF A PERSON? THE QUEST FOR EMBODIMENT

Bionic prostheses for the upper- and the lower-limb raised over the past two decades as technological solutions for restoring motor functions to amputees. Amazing achievements were possible thanks to breakthroughs in technological developments (such as miniaturization of actuators and batteries) and computational approaches for governing the symbiotic behavior of these devices and their human users. Research projects leading to the most impressive performance in this field are grounded on bio-inspiration, i.e. the synthesis of morphological functions and/or computational principles that are inspired by their biological counterparts: human limbs. Nowadays, bionic legs can restore the sound biomechanics of locomotion, requiring complex exchanges of energy between the user's body and the environment; while bionic arms can manipulate several objects with an ever-increasing dexterity. More recently, other research projects aimed at equipping such devices with the capacity to restore sensory functions on top of motor ones. Indeed, tactile and proprioceptive sensors located in the human limbs mediate all the interactions we have with our environment, both in object manipulation and locomotion. Restoring these rich bidirectional sensorimotor interactions is thought to be a critical step towards "embodying" the prosthesis within the user body plant, and thus achieving the most advanced stage of personalization where the user would perceive the prosthesis as being part of his·her own body. In this talk, we will review the most recent advances in the development of sensorimotor prostheses with bio-inspiration as a backbone. We will overview the merits and limits of the field and outline the challenges paving the way of future research developments.

ROOT, Dakota

Ecole Normale Superieure, Paris

THE DIGITAL RELATION: A PHENOMENOLOGICAL ANALYSIS OF HUMAN-GIGITAL INTERACTION

Don Ihde's theory of human-technology relations shows that technology always has a profound impact on our experience through four different relations to objects and systems. Much attention has been focused on how our actions are mediated by technologies. Yet few scholars have addressed how contemporary digital technologies affect structures of experience such as perception and movement, or how the world is given to us through specifically digital mediation.

First, through an analysis of Don Ihde's work in Technics and Praxis, Existential Technics, Embodied Technics, and Bodies in Technology, this presentation explores how technologies are in the background of action, are embodied in activity, hermeneutically relate us to the world, and show up as a quasi-other. Next, I argue that while these human-technology relations do describe ways of being with technologies, we also need a digital relation. My claim is that digital technologies change our perceptual world by affording new interfaces for engagement. Digital technologies generate virtual objects which may have a new ontological status, adaptable and interactive. I show that digital technologies are third order technologies that connect and communicate with humans outside the loop. Finally, the unique nature of artificial intelligence systems means that they challenge the divide between other and quasi-other as they adapt the environment for us.

Inquiry into human-technology relations should consider how the absorption of digital technologies into everyday practices affects experiential life in ways that pre-digital technologies do not. Distinguishing between technologies and digital technologies may help us understand the unique ways that digital devices, systems, and tools mediate the world for us.

ROSENBERGER, Robert

Georgia Institute of Technology

MEDIATION OF THE LIFEWORLD: POSTPHENOMENOLOGICAL RESEARCH (PANEL 1)

In this panel, we consider a variety of ways that contemporary life is mediated by the technologies all around us. Postphenomenology has proven useful for drawing out the nature and implications of these human-technology relations, and we take up and advance this perspective here. Our panel begins with a timely paper by Bas de Boer and Peter-Paul Verbeek which considers the technological mediation of face masks. They bring in Merleau-Ponty's notions of the "flesh" and "chaisma" to explore the ways in which face masks co-constitute of human presence. In our second paper, Sanna Lehtinen considers the technological mediation of city space, and how our relations to technology shape urban aesthetics. Stan Kranc investigates the meditation of measuring equipment in our third paper of this panel, exploring the case of indicator diagrams for steam engines. And in our fourth paper, Nicola Liberati addresses the topics of smart textiles and solarpunk fiction, following out the implications of wearable computing. Across this series of papers, a picture emerges of the everywhere-present nature of our relations to technology—in the items we wear, in the items we engage and interpret, the items that inform our surroundings—and the potential for the philosophy of technology to help disentangle its repercussions.

ROSENBERGER, Robert

Georgia Institute of Technology

SUBJECTS WITHIN TECHNOLOGY: POSTPHENOMENOLOGICAL RESEARCH (PANEL 2)

The papers of this panel develop innovative combinations of ideas and methodologies to reconsider what it means to be human subjects within our contemporary technological situation. In our first paper, Bernhard Irrgang and Friederike Frenzel advance their "cyberphilosophical" perspective, a program which brings together notions from hermeneutics, phenomenology, evolutionary psychology, and cognitive science. Steven Dorrestijn and Wouter Eggink develop a practical design research perspective that uses ideas from postphenomenology to consider the ethics of the design process. In our third paper, Daniel Susser explores the implications of the incessant work of predictive algorithms upon us for our status as human subjects. Next, Hidekazu Kanemitsu explores how the technologies of our world—from infrastructure to transportation—influence our own bodies. And in our final paper, Richard Lewis develops a posthuman methodology for drawing out the various aspects—temporal, spatial, sociocultural, etc.—of our human-technology relations.

ROSENBERGER, Robert

Georgia Institute of Technology

HUMANS AND ALGORITHMS: POSTPHENOMENOLOGICAL RESEARCH (PANEL 3)

In this panel we bring together insights from the postphenomenological philosophical perspective to address issues of computing in contemporary life. How should we understand ourselves within our rapidly evolving context of computation, algorithms, robotics, and artificial intelligence? Cathrine Hasse begins our panel by combining postphenomenology with the anthropology of learning to consider what it means for a robot to "pay attention," and what the implications are for the nature of robotics itself. In our second paper, Yoni Van Den Eede reconsiders the notion of technological "transparency," a central idea in postphenomenological thinking, but reevaluated in terms of contemporary algorithmic invisibility. The idea of the technological singularity is explored in our third paper by Stacey Irwin. She uses the postphenomenological notion of multistability to consider the various facets of this potential future, including issues of AI and VR. Siri Beerends and Ciano Ayden explore the idea of authenticity in a world in which algorithms perform the work of authenticating who we are. And in our final paper, Galit Wellner considers the nature of the imagination of AI, criticizing how this term tends to be used in such discussions, and advancing a novel "layered" model for understanding imagination mediated through AI and human interaction.

ROSENBERGER, Robert

Georgia Institute of Technology

ON THE MATERIAL HERMENEUTICS OF IMAGES IN SCIENCE (AND AN ASIDE REGARDING THE "OUR HOLLOW EARTH" CONSPIRACISTS)

In his forthcoming book, Material Hermeneutics, Don Ihde brings together insights into the philosophy of technology developed across his career, and refines them in new ways and through new examples. One career-long fascination has been the topic of scientific imaging, with his most definitive statement in his 1998 book Expanding Hermeneutics. This has led a generation of postphenomenologists to follow Ihde in these studies, as seen, for example, in another forthcoming book, Postphenomenology and Imaging, edited by me and Samantha Jo Fried. In my observation, it is within the rich example of scientific imaging that the idea of material hermeneutics becomes most acute. Some philosophical accounts of scientific images understand them primarily as a form of data like any other, or alternatively as a kind of representation of the world. The postphenomenological perspective has instead emphasized the fact that images in science are also artifacts, i.e., human-made objects, technologies, things with which we engage in human-technology relations. As such, this perspective offers tools to articulate the human interpretive activity of "reading" images, as well as the contributions to interpretation made by the specificities these artifacts' materialities. In this presentation, I'll also make use of my own case studies into Mars satellite and telescopic imaging, including a brief look at the "Our Hollow Earth" conspiracy, a bizarre set of beliefs about the interior of our planet.

ROSENBERGER, Robert

Georgia Institute of Technology

TWO ARGUMENTS REGARDING AUTOMATED VEHICLES AND DRIVER DISTRACTION

The topic of smartphone-induced driving impairment has been a major area of study for me for more than a decade. I have worked to combine the empirical data and ideas coming from the field of cognitive science with insights from postphenomenological philosophy of technology. A new and potentially game-changing chapter of this ongoing story of science, technology, and policy development is coming with the prospect of sautonomous vehicles. I have been developing two arguments related to this topic.

The first is a deflation of the oft-heard assumption that autonomous cars will solve the problem of driver distraction. I urge us to resist using this assumption as a basis for stalling on contemporary efforts to curb smartphone driver distraction, including efforts at regulation and consciousness raising. I argue that while it is possible that a future of autonomous vehicles may soon be upon us, there are several reasons why this future might be farther off than we hope, including questions over technological, social, and legal developments.

The second is a warning regarding the issue of “takeover times,” i.e., the time it takes for a human driver to take over the driving task when prompted by a semi-autonomous vehicle. A chorus is growing over the concern that it is unreasonable to expect a human driver to take over at any moment. I develop a phenomenological version of this concern, one especially focused on issues of distraction and habituation.

ROSSMAIER, Leon

University of Twente

MOBILE HEALTH, NORMATIVITY, AND EXPLOITATION

Mobile health (mHealth) apps are becoming progressively important for primary care, disease prevention, and public health interventions. They promise to enable personalized, more effective, and efficient care, based on the analysis of life streamed patient data. Many apps engage the user actively in her own care by incentivizing healthy lifestyles and healthy behaviors using gamification and other behavior changing mechanisms based on the user's health data.

Data collection is a highly selective task seeking out only those phenomena that are quantifiable and feasible to quantify according to present technical development. The user of a mHealth app is exposed only to the digitized aspects of her health the product is designed for, like heart frequency, sleeping patterns, or blood oxygen level.

Borrowing the concept of the digital medical gaze from Jessica Morley and Luciano Floridi (2019), I argue that mHealth apps create a data persona of the user that motivates the user's action to behave more healthily. This only reflects the user's health partially, neglecting other important aspects of the user's health and compromising her self-determination. Users can either accept this and gain a potential health benefit or abstain from using such products entirely.

Both health and self-determination are fundamental dimensions of human well-being. In this paper, I argue that such value trade-offs are exploitative, even though they are mutually advantageous. Accepting that the values at stake are fundamental dimensions of human well-being that have to be met according to the sufficiency theory of justice put forward by Madison Powers and Ruth Faden (2006), such exploitative value trade-offs are also morally wrong because they create unjust inequality.

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RUFFO, Marie-des-Neiges

UNamur

WHEN THE MACHINE NO LONGER OBEYS LIKE A "GOOD LITTLE SOLDIER"

For better or worse, if there is one area that has always encouraged innovation and fueled fears, it is Defense. Many technologies, starting with the DARPA Grand Challenge autonomous vehicle, have come from the impetus (and finances) given by the military world. We could draw a parallel between what is expected, in our collective imagination, of a soldier on the one hand, and of a machine on the other. Is the soldier just a “killing machine”? If so, the proposal to create SALAs (Lethal Autonomous Weapons Systems) would only be the logical continuation of the evolution of modern warfare, which is increasingly computerized. But if the assumption of the soldier as a "killing machine" is wrong, then we should reconsider the comparison between the machine and the human from another angle than that of lethal efficiency. What is the expected behavior, always in our imagination, of a soldier, or of a machine, if it is not blind obedience? How should we then consider the bugs of the machine, and the conscientious objections of soldiers to manifestly criminal orders? When machines and humans resist prediction and modeling, shouldn't we make room for doubt?

RUNDE, Jochen

Cambridge Judge Business School

Co-author: Philip FAULKNER

DIGITAL OBJECTS AS ARTIFACTS, MATERIAL OR NONMATERIAL BUT ALWAYS REAL

We present a theory of digital objects aimed at capturing both their ontological complexity and how their identity and use depends on their social positioning. The argument begins with what it is to be an object, the differences between material and nonmaterial objects, and various categories of nonmaterial objects including syntactic objects and bitstrings. These categories provide the basis for our conceptualization of two kinds of object at the heart of the digital revolution, the bitstring and the more general category of digital objects. One of our main theoretical innovations is the concept of "bearers" of nonmaterial objects—the things a nonmaterial object may be inscribed on, contained within, or borne by—and we pay particular attention to the capacity of bitstrings to serve as nonmaterial bearers of other nonmaterial objects and the idea that there may exist many layers of such bearers. Finally, following some brief observations on the relationship between digital objects and processes of computation, we provide an account of the social identity of digital objects, what they are, so to speak, in the communities in which they arise. The guiding idea here is that objects, no less than people, occupy social positions that locate them as components in larger systems, and where such positions are deeply relational, performed, and, crucially, inform the social identity of their occupants. We close with some implications of the theory, focusing on its use as a conceptual frame through which to view digital phenomena, and its potential to inform existing perspectives on digital technology per se and how the relationship between people and digital technology might be theorized. These implications are illustrated with reference to secondary markets for software, the treatment of digital resources in the resource-based, knowledge-based, and service-dominant logic views of organizing, and recent work on sociomateriality.

SAFDARI, Abootaleb

Sharif University of Technology

DEVELOPING A RELATIONAL FRAMEWORK FOR THE ETHICS OF HUMAN-ROBOT INTERACTION BASED ON PHENOMENOLOGICALLY INSPIRED ENACTIVISM

Many scholars have argued in favor of humanoids' moral status in recent years. One of the main lines of thought they have pursued is the so-called Relational Turn (RT) (Gunkel, 2019), (Coeckelbergh, 2010) according to which they enjoy a kind of moral significance, regardless of robots' ontological properties – which are too great to make them morally considerable - and thanks to their relational/extrinsic properties. However, I believe that it was established based on an unquestioned assumption according to which mind is something hidden in the skull. As the assumption is individualistic, it prevents the relational turn from becoming truly relational. In a nutshell, it could be claimed that the current formulation of RT implicitly involves the following argument (Coeckelbergh, 2011), (Weber, 2011), (Gunkel, 2019) and (Tollon, 2020):

i. There is an unfillable gap between internal and external properties,

ii. Humanoids certainly lack the necessary internal states to become morally significant,

iii. Therefore, there is no other choice but to exploit the external/relational properties.

It means that if the humanoids become conscious or sentient in the future, we can abandon the relational view and hold the individualistic position again.

However, a more coherent foundation can be provided for the relational approach through phenomenologically-inspired enactivism, according to which the mind is something distributed between brain-body-environment and perception is an active endeavor. Here the unit of moral consideration will be the whole agent-patient-interaction-world and properties, such as autonomy and responsibility, and the moral status will be ascribed to this whole that "…has its own independent momentum" (Colombetti & Torrance, 2009, p. 518). From this perspective, the moral status of both humans and robots, as well as the ethical character of a situation arises from the dynamics of situated participants embedded in the cultural, social, and historical circumstances. Therefore it could be said that the moral status of robots (as well as humans) is not something pre-determined and will be changed when they enter into our daily life. Coeckelbergh, M. (2010). Robot rights? Towards a social-relational justification of moral consideration. Ethics and Information Technology, 12(3), 209–221. https://doi.org/10.1007/s10676-010-9235-5

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CIVILISATION CULTURES AND TECHNOLOGY

In its evolution, humanity has witnessed a few major breaks . Are we currently living through another one, or are we simply witnessing the full development of tendencies existing for a long time now?

It is difficult to answer these questions because we all see things from our own background and cultural point of view. Cultures have a great capacity to mutually ignore each other or even discredit each other. Because cultures are grids for decoding the world, they are the very origin of our relationship with reality.

One way to approach the major steps in human evolution is to construct a breakdown based on the modifications recorded in dominant activity. The term "dominant activity" means the activity that most of humanity carries out at a given time. For nearly one millions years, humans' dominant activities were hunting and gathering. Cultivation and rearing then took over for 10,000 years, and 100 years ago, gave way to industry and trade.

Finally, today, creation and communication – fields in which a little more than 50 % of the active populations in the most advanced countries work – are gaining ground.

The values of a hunter-gatherer, who has to move around quickly in order to follow seasons and animals, are therefore different from the values of a planter and blender, who has to protect his or her territory and stay close to it at all times.

Every time humanity has changed dominant activities, tools and way of thinking, its way of perceiving, organizing itself, exchanging, and communicating also underwent change.

In order to analyze the characteristics of each step and the evolution of culture and corresponding values, we defined seven characteristic domains:

Tool : evolution of tools, as exteriorizations and extensions of our organic functions

Power : evolution of the factor determining material and social power

Exchange : evolution in ways used to exchange goods

Thought : evolution in the way of thinking and understanding reality Communication : evolution in the way of communicating

Organization : evolution in the way of organizing things within society History : evolution in the way people comprehend time and history

By intersecting dominant activities and characteristic domains, we obtain a grid made up of 28 elementary meshes. It is made up of seven vertical columns, corresponding to the characteristic domains, and of four horizontal columns, corresponding to the dominant activities.

SANZ MERINO, Noemí

University of the Balearic Islands

Co-author: Oliver TODT

ASSESSING ASSESSMENT: THE CASE OF EUROPEAN RISK AND BENEFIT ASSESSMENT

In this contribution we analyze the tensions between, on the one hand, the European Commission's declared aims of facilitating citizen and stakeholder participation in the regulation of scientific-technological activities and products and, on the other, the epistemic beliefs of European regulators which appear to make attainment of this aim rather difficult.

About two decades ago, the European Commission (EC) set in motion a re-thinking of the expert assessment on which its evidence-based policies are based. The EC has acknowledged the uncertainty to which its policy-making is subject and, consequently, the need for implementing more transparent and participatory approaches to the use of expert knowledge in European regulations. In parallel, the EC has fostered the creation of "soft" mechanisms for European governance.

We argue, on the basis of an analysis of several recent European regulations of techno-scientific products (health claims, chemicals), that in spite of these objectives the EC appears committed to the assumption that there is only one single epistemic policy. The latter implies that decision making is to be based on "objective" scientific evidence, with independence of the epistemic and non-epistemic aims of the respective regulation. Regulators hold certain epistemic beliefs which create an a priori constraint on opening up expert-based decision making to other stakeholders.

European regulation justifies the underlying epistemic policies in epistemic terms only. To the contrary, on our interpretation the epistemic criteria that govern regulation are a matter of choice. This can be shown by comparison with regulatory implementations in other countries.

We conclude, recurring to Amílcar Herrera's terminology, that (at least regarding the analyzed regulations) the European Commission has an explicit policy of supporting "soft" governance, while implicitly implementing a policy of "hard" governance.

SCHARFF, Robert C.

University of New Hampshire

IHDE'S MATERIAL HERMENEUTICS: POSTPHENOMENOLOGY IN AND OUT OF THE SCIENCES

In Material Hermeneutics Don Ihde returns to his earlier critique of the "Diltheyan Divide" between natural and human science, in order to discuss "the deep role of hermeneutics in all science praxis" and to argue for "an expanded material hermeneutics in the humanities and social sciences." His background context, then, is set by two phenomenologically established ideas. All science, not just human science, is interpretive; and interpretation in the human sciences cannot be confined to the interpretation of texts. With these ideas in place, Ihde devotes much of the book to the sort of postphenomenological analyses for which he has become famous, namely, the study of particular instances in which phenomena have come to speak to us differently because technological advances—especially advances in visual and auditory imaging—have opened up the world for us in a way that necessitates not just change in our theories but in ourselves as phenomenologically responsive scientists.

My comments focus on Ihde's analysis of the discovery of Ötzi, the Ice Man of the Alps, which displays all the strengths of his approach, but also some of its possible difficulties. On the one hand, the analysis is clearly "phenomenological," insofar as it shows how technological advances have the power to resituate scientific practice sufficiently to encourage us to continually revise our theories but more generally to reinterpret our sense of "world" in light of what "better" mediation discloses. On the other hand, it would appear that the success afforded by this sort of analysis sometimes leads Ihde to claim too much. His postphenomenological approach seem fine when the focus is on examples from natural- and biological-scientific practice; and he makes a strong case that this approach should be extended to the human sciences. As he says, there is now little doubt that "all 'sciences' have a hermeneutic dimension, today highly embodied in a materially mediating form." However, should we say, in the same voice of as that of a postphenomenologist of the sciences, that these same technologically enabled changes should also "change the Lifeworld of human perception and experience," period, full stop, with no regard for extra-scientific praxis and world-understanding?

SCHICK, Johannes

University of Cologne

"We are in need for Poets of Technology" On Techniques of the Body and Techniques of Imagination

Gilbert Simondon claims in an interview with the Canadian philosopher Jean Le Moyne that we are in need of poets of technology (Simondon 2014, 416). According to him, a poetry of technology is necessary to imagine future technologies, to develop new technical objects and to understand forgotten and outdated techniques and technologies. The need for a poetry of technology is due to a lack of a "technical culture". The technical is not seen - in contrast to works of art or rites - as part of culture, but as an otherness whose value is determined merely by the market. Only socially marginalized or oppressed groups (children, women, rural population) develop, according to Simondon, a symmetrical relationship to technology, since the operationality of technology is in the foreground in contrast to external social norms. The poetry of technology, in producing techniques, images and literature, helps to overcome the juxtaposition of technology and culture. Poetic representations which attempt to depict technical objects in analogy to living beings without anthropomorphizing them, make the modes of being of technical objects in socio-technical networks and their operationality visible. Furthermore, they indicate possibilities of participation and present by means of imaginative techniques potential futures. For Simondon, the poetry of technology is therefore part of the philosophical and enlightening work of creating a symmetrical relationship between human beings, techniques and the environment. This program of Simondon is going to be discussed in the framework of his philosophical and anthropological predecessors Henri Bergson, Gaston Bachelard and Marcel Mauss.

SCHMIDT, Jon A.

Burns & McDonnell

THE LOGIC OF INGENUITY: ENGINEERING REASONING AND PRACTICAL DELIBERATION

Charles Sanders Peirce is best known as the founder of philosophical pragmatism but considered himself to be first and foremost a logician, dedicating his entire life to the study of reasoning. He maintained that the "logic of inquiry" commonly employed by scientists involves three stages: retroduction, explaining a surprising fact by formulating a plausible hypothesis; deduction, explicating what else would follow from the hypothesis and making experimental predictions accordingly; and induction, examining whether additional observations corroborate or falsify the hypothesis. There is a sense in which the EWT is a "logic of ingenuity" with a similar structure: (retroductively) creating a model of a problem and its proposed solution, then (deductively) working out the necessary consequences, such that this serves as an adequate substitute for (inductively) evaluating the actual situation.

While science is perceived as an especially systematic way of knowing, engineering could be conceived as an especially systematic way of willing, so its distinctive form of reasoning should be paradigmatic for making decisions of any kind and then acting upon them. The key to success is having the ability to discern the significant aspects of reality and accurately represent them, whether mathematically as in engineering or narratively as in everyday life, before definitively selecting a way forward from among multiple viable options. This typically requires the exercise of practical judgment acquired through relevant experience.

SCHNEIER, Bruce

Harvard Kennedy Center

THE COMING AI HACKERS

Hacking is inherently a creative process. It's finding a vulnerability in a system: something the system allows, but is unintended and unanticipated by the system's creators -- something that follows the rules of the system but subverts its intent. Normally, we think of hacking as something done to computer systems, but we can extend this conceptualization to any system of rules. The tax code can be hacked; vulnerabilities are called loopholes and exploits are called tax avoidance strategies. Financial markets can be hacked. So can any system of laws, or democracy itself. This is a human endeavor, but we can imagine a world where AIs can be hackers. AIs are already finding new vulnerabilities in computer code and loopholes in contracts. We need to consider a world where hacks or our social, economic, and political systems are discovered computer speeds, and then exploited at computer scale. Right now, our systems of "patching" these systems operate at human speeds, which won't nearly be enough.

SHEW, Ashley

Virginia Tech

IDENTITY AND IMAGINATION IN TECHNOLOGY AND DISABILITY

I take narratives about disability mobility technologies -- that is, narratives about walkers, wheelchairs, crutches, and canes -- to talk about how people make decisions about technologies. In many places, walkers often conjure up the idea of old age, while underarm crutches might indicate sports injuries, and running blades indicate elite disabled athleticism. People resist or adopt new technologies often based on the image a technology holds --- this is true for many technologies, not just those for disability. Our imagination is engaged when it comes to technologies we use close to our bodies. This presentation takes mobility disability as a case study and makes explicit the connections disabled people have with their devices, while situating this as a phenomenon people have with all sorts of technologies. In this work, I highlight Mallory Kay Nelson's idea of transmobility to help frame this topic. I also draw from the work of Alison Kafer, Alice Wong, and The Cyborg Jillian Weise in their tension/argument with Donna Haraway's conception of cyborg. Adoption of technology is not a mere functional-technical process, but one that engages imagination, cultural biases, and prior expectations.

SHIH, Bono Po-Jen

Department of Science, Technology, and Society at Virginia Tech

TECHNOLOGY OF TECHNOLOGY AND THE SUBJUGATED TECHNICAL PRACTICE

The paper critiques the frequent identification of modern technology with efficiency and progress that connote an autonomous, out-of-control character. My first goal, through an etymological reformulation of the concept of technology, is to make an argument that technology shall not presuppose efficiency as an imperative, since technology, broadly construed, is the use of knowledge and resources to meet specific human needs and purposes in context. In my analytical framework, the dominant modern technology that favors efficiency and numeric-based criteria and accordingly discriminates against other technical practices should better be called "technology of technology." My second goal is to fully develop the concept of technology of technology, and exemplify three main ways its dominant form deviates from the purposes technology ought to serve, rules over other alternative technologies, and bears upon our personal and institutional technical practices. Related to that end, I also identify and illustrate what I call the subjugated technical practice under the rule of the dominant technology of technology. My third and last goal is to develop the concept of "critical technology of technology" in order to critique and challenge the dominant technology of technology. Sharing Andrew Feenberg's longtime commitment to critiquing technology for a more desirable modernity, critical technology of technology does not forgo the good and formative parts of technology and give them up to its dominant, suppressing form. Despite some notable differences from critical theory of technology, critical technology of technology intends to be its companion and joins its efforts to empower alternative, subjugated technical practices and make critique an essential component in our practice of technology.

SHUTKIN, David

John Carroll University

A MATERIAL PEDAGOGY OF CULTURE AND TECHNOLOGY

Synthesizing the extended mind with new materialism, I consider how learning with technology is always already learning with culture. To learn is not to store information in the brain, but to have a deeper attunement with material things, cultural practices, and people. As a process of attunement; learning is an ongoing perceiving and acting with the affordances of the constitutive elements of the environment (Ingold). In this way, the extended mind begins with feedback between embodied subjects and the material world. Whether writing an essay or engaging a simulation, students manipulate the technologies they are thinking with and changes feed back to encourage embodied action. The new materialism similarly embraces writing as thinking as it jettisons writing as representational (St. Pierre). Learning is an immanent process of becoming and an iterative process of encounters between an assemblage of embodied people, material things and ideas (Braidotti, Chemero).

Students learn with their bodies and the material world. And as learning is embodied, there's no mind-body dualism. As students' minds are not distinguished from their bodies, their cultures cannot be distinguished from the material world. There's a shift from a culture-nature binary to a monist conception as the individual subject of humanist thought gives way to an embodied posthuman subjectivity (Braidotti). This merging of culture with nature informs the posthuman subjectivity of students urging a reconceptualization of technology integration in schooling. Technology integration occurs in a cultural space where the world of the student commingles with their teacher's technological, pedagogical and curricular knowledge. It is a space of relational ethics emerging from the attunement of the teacher with the cultural and material experiences of their students and their students' attunement with their experiences of schooling (Davies). Who our students are, where they live and what they do with things deeply informs their learning.

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SIEGLER, Marcel

TU Darmstadt

SARTRE'S DIALECTICAL PHILOSOPHY OF TECHNOLOGY AND ITS SIGNIFICANCE FOR UNDERSTANDING SOCIETAL CONSTELLATIONS AS PRACTICAL ENSEMBLES

Throughout his works, Jean-Paul Sartre profoundly reflects on the interrelation between technology and social reality. His philosophical thoughts on technology combine action theory and dialectical systems thinking with considerations about the instrumentality of the material world. As such, Sartre's theory allows for philosophers of technology and STS scholars to analyze the role of technology in the constitution of social reality without lapsing into either social constructivism or materialist determinism. In aid of this claim, the paper retraces Sartre's philosophical thoughts on technology and examines their significance for understanding societal constellations as practical ensembles.

Human existence, according to Sartre, is a materially dialectical and action-driven process that is fundamentally mediated by material things. Human action represents the active negation of previously posited ends regarding a state of the world lacking said ends. Simultaneously, every such action also represents the instrumentalization of things as means towards these ends. Things are not instruments per se, they rather become instruments through action by ranging on a situation-specific spectrum of utility and adversity. By correlating to an individual's field of possibilities, things constitute an individual field of instrumentality. Consequently, the dynamics of human existence, action, and experience are understood to emerge from the dialectical relation between humans and the material things at their disposal.

According to Sartre, this dialectical relationality has major implications for the constitution of societal constellations, also called 'practical ensembles', such as families, factories, cities, societies, etc. Within practical ensembles, the interrelations between humans and things not only constitute and structure the conditions of possibility of human action. These conditions themselves are also manifested in the form of practico-inert things and structures as well as habituated action dispositions, known as 'hexis'. Understanding how history processes through the (trans-)formation of practical ensembles sheds light on the material conditions of sociality and human existence.

SIKKA, Tina

Newcastle University

ANDREW FEENBERG AND THE DEMOCRATISATION OF TECHNOLOGY: COVID-19 AND THE CASE OF HYDROXYCHLOROQUINE

In this talk I examine the contentious Covid therapeutic, hydroxychloroquine, using Andrew Feenberg's theory of technological democratization. I explore whether the use of this experimental medicine is suitable, fit for, or reflective of a process of technological democratization in a manner that is similar to that of HIV/AIDS medicines and trials. In answering this, I draw on Feenberg's technological democratization thesis and extend his conception of care, bodily integrity, and communication in medicine using a reconstructed concept of care as expressed by feminist ethics. My central argument is that technological democratization of Covid-19 treatments and the underlying science has been made extremely difficult because hydroxychloroquine has become emblematic of polarized and polarizing political battles. In doing so, I articulate a model of 'distorted technological democratization' to explain this phenomenon.

SIMONS, Massimiliano

Ghent University

JEAN-FRANÇOIS LYOTARD AND POSTMODERN TECHNOSCIENCE

The French philosopher Jean-François Lyotard famously defined the postmodern condition as the "incredulity towards metanarratives". Though this aspect of Lyotard's thought has been taken up and discussed extensively in aesthetics and political philosophy, it is less known that Lyotard grounded his claim in a philosophy of technology. If one takes a closer look at his argument about the postmodern, one notices the recurrent claim that, not only did metanarratives became untenable, but they also were replaced by a what Lyotard later would call 'technoscience'. Knowledge was no longer legitimated by coordinating imaginaries such as emancipation or revolution, but by a logic of efficiency, producing knowledge in name of optimization and performativity.

In this paper I want to argue for three things. First of all, that Lyotard's problematization of technoscience resides in the claim that it lacks any kind of imaginary: it is a logic of technology that organizes itself with a complete indifference towards humanity, even announcing its obsolescence. Secondly, that Lyotard's diagnosis can shed light on a number of recent scientific fields that have been (independently) labeled as technosciences. I will mainly look at two cases: synthetic biology and financial algorithms. Finally, I will argue that therefore Lyotard's diagnosis of the postmodern deserves a reappraisal and should be more fully incorporated in the canon of philosophy of technology.

SIMOS, Manolis

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A Critical Discussion of Peter Sloterdijk's Philosophy of Technology

Peter Sloterdijk's philosophy of technology can be understood in terms of a naturalized reinterpretation of Heidegger's history of Being. In light of this reinterpretation, Sloterdijk depicts the future in transhumanist terms. Specifically, in his imagery of 'cybernetic modernity', the constitutively efficient machine is the—always having been needed—extension of the constitutively imperfect human body. According to this imagery, the history of modernity is conceived as a history of narcissistic traumas, of displacements of man's privileged position in nature. Sloterdijk argues that the first three well-known traumas—Copernican heliocentrism, Darwinian evolution, and Freudian unconscious—presuppose the conceptualisation of the human in terms of machine. Finally, this historical development is underpinned by a specific mechanism, namely, the disposition of the mechanical engineer to demystify nature, traumatizing, thus, the non-engineers she enlightens.

A critical discussion of Sloterdijk's schema is attempted. First, I show in which way Sloterdijk adopts an essentialist philosophy of technology, conceiving technology as metaphysically autonomous. Specifically, I argue that his conception of technology can be understood in terms of Ian Hacking's 'styles of scientific reasoning', and his essentialism in terms of inevitabilism. Second, in light of the above, I show that Sloterdijk's inevitabilism is grounded in a specific conception of Hegel's notion of struggle for recognition. Third, I present, from a Nietzschean and pragmatist perspective, the reasons why such a metaphysical stance is problematic, and explore the way in which Sloterdijk's essayistic approach can be interpreted to neutralise these metaphysical commitments.

SMITH, Dominic

University of Dundee

THE QUESTION CONCERNING THE CONSTELLATION': BETWEEN BENJAMIN AND HEIDEGGER ON THE TECHNOLOGICAL IMAGINARY

In 'The Question Concerning Technology', Heidegger writes: 'The question concerning technology is the question concerning the constellation (Konstellation) in which revealing and concealing, in which the coming to presence of truth, come to pass'. The emphasis on 'revealing and concealing' and 'truth' here is emblematic of a Heideggerian approach to aletheia that has exerted a powerful influence over philosophy of technology ever since. As this talk will argue, however, the term that really ought to command our imagination is 'constellation'. This is because it places Heidegger in a thought constellation with another thinker of Konstellationen: Walter Benjamin.

Part one surveys how the image of constellations is used by Heidegger and Benjamin: in Heidegger, while the imaginary it points towards is fecund, its use is desultory; in Benjamin, in contrast, the image is transfigured into a key methodological concept from the 1920s onwards, features throughout his later work, and has an afterlife in the work of Adorno. Part two uses this image as a lens for a broader comparative reading of Heidegger and Benjamin: whereas Heidegger has offered the more influential philosophy of technology as a matter of historical fact, Benjamin may, I argue, offer the more interesting philosophy of technology as a matter of principle. I support this by applying Benjamin's concept of constellations to his own work, and using it to conduct a combined reading of key texts including 'Little History of Photography' (1931) and 'The Mimetic Faculty' (1933). Part three concludes by establishing a thought constellation between Benjamin, Goethe, and Samuel Weber, to argue in favour of forms of 'delicate empiricism' and 'methodological extremism' emerging from Benjamin's work. While these forms can, I argue, be read in complementarity to Heidegger's ontologically-focused approach, I also argue that they are superior in several important respects.

SOLTANZADEH, Sadjad

Asser Institute / University of Amsterdam

THE TECHNOLOGY-DEPENDENT REALITY OF SCIENTIFIC ENTITIES

What constitutes the reality of scientifically postulated entities? And to what extent do technologies shape this reality? Among different senses in which scientific entities and phenomena can be said to be technology-dependent, there is one sense that deals with the influence of technologies on the reality of scientifically postulated entities. I analyse this particular sense of the technology-dependence of scientific entities and phenomena, especially in the context of the sciences of unobservables.

I first use the activity realist approach to define reality. Reality, as defined here, would resemble William James' notion of 'practical reality' and John Dewey's notion of 'experienced reality'. I contrast this notion of reality with 'existence', which is a concept generated by the entity realist approach and is used in discussions concerning the truth conditions of scientific theories. I identify three main types of activities that shape the reality of scientific entities, namely, experimental observations, theoretical descriptions, and practical applications. I argue that the reality of scientifically postulated entities is dependent on technologies that are used in scientific experiments. This means that different technologies can generate different scientific realities. This sense of technology-dependence comes at different degrees, and this degree is at its extreme in the case of the sciences of unobservables. Finally, I show that while no particular activity can guarantee the place of an entity in the scientific reality, experimental observations play a more influential role than theoretical descriptions and practical applications in shaping the reality of scientifically postulated entities.

SON, Wha-Chul

Handong Global University

DEMOCRACY IN THE "HYPERLEAD" SOCIETY

The era of the hyperlink has passed and the age of the hyperlead has arrived. This study examines the scope and impact of the growing AI recommendation system on the human acquisition of knowledge and the function of democracy.

Walter Ong has studied how people achieve and preserve knowledge before written language was invented. According to him, it was impossible to establish a systematic structure of knowledge until the written language was invented and systematic knowledge and rational thinking came to characterize humanity.

Herbert Dreyfus analyzed how hyperlink dismantled systematic knowledge. The hierarchical arrangement of knowledge established in the culture of writing is not necessary for the time of hyperlink where everything can be connected with each other.

The AI recommendation system introduces a new knowledge acquiring mechanism. The user's choice is often limited by given options by the system. The data of the user's past is used to predict the future, which traps one in an endless loop. I coined this phenomenon as "hyperlead."

As the democratic system emphasizes the autonomous judgment of the individual, the growing power of hyperlead is a threat. There are good reasons to believe that the recent extremism appearing in many democratic countries is the result of the hyperlead. If this is the case, the political challenges in hyperlead society are apparent. On the one hand, one has to promote technological progress to maintain the principle of democracy. On the other hand, it is important to enhance the ability of the public to overcome hyperlead technologies.

STAMENKOVIC, Philippe

Aix-Marseille Université Maison de la Recherche

A Citizens' Assembly on Information and Communication Technology to Collectively decide our Usage of It

Information and communication technology (ICT) gives rise to many expectations, desires, or rejections and fears (as e.g. the deployment of 5G antennas in France today illustrates). Thus, the use of ICT, and its impact on society, should be democratically discussed at the collective and social level. In this presentation, I claim that a citizens' assembly – such as the one on climate which just took place in France – would be a good way to do so.

Indeed, the French Citizens' Convention on Climate (CCC) has demonstrated its ability to foster public deliberation on a "wicked problem", namely climate change (Giraudet et al., 2021). In the same way, one could imagine a citizens' assembly on ICT, first at the scale of each country, and then at an international scale.

I will first present some general features of the CCC, and show that it was indeed capable of raising awareness, enabled fruitful deliberations, and produced clear and (potentially) efficient recommendations. In particular, I will present some measures produced by the CCC which directly express concern about our use of ICT and its impact on climate, as well as results of questionnaires answered by participants showing more generally their doubt towards any "technological fixing" of climate change. Such elements show the potential of a citizens' assembly for addressing technology, and in particular ICT, usage.

In a second part, I will delineate a simple proposal for a similar citizens' assembly on ICT. The rough idea is to help discuss and collectively define the "upper and lower boundaries" (potentially translated into regulations) we want to set to our use and applications of ICT, in order to avoid any undesirable or excessive use (be it undemocratic, unethical, alienating or compulsive, etc.); or, conversely, to ensure that no one is left behind with an insufficient access to ICT.

STAMM, Emma

Villanova University

THE DATA-IMAGE: THOUGHT AS CURRENCY IN THE AGE OF DATAFICATION

My paper frames capitalism in the digital age as reliant on mental labor extortion. I begin by introducing and surveying the philosophical literature on the notion of "psychopower," including Bernard Stiegler's For A New Critique of Political Economy, Yann Moulier Boutang's Cognitive Capitalism, and Byung-Chul Han's Psychopolitics: Neoliberalism and New Technologies of Power, among other texts. From this basis, I argue that habitual data production is a form of cognitive self-exploitation, and that the economic status of data as non-rivalrous goods masks the labor reified in digital networks. Stated differently, because the global supply of data is not depleted by consumption, activities which yield data appear to be categorically distinct from labor qua labor. Contemporary socio-technical norms imply that mental labor power is non-rivalrous, that is, not given to depletion upon expenditure — which would make it effectively infinite. Drawing on Gilles Deleuze's conceptualizations of the image of thought, the time image, and the movement image, I propose "the data image of thought" as theory which links the premise of virtual and infinite mental labor power to the mechanics of digital capitalism.

In the second part of my paper, I argue that in order to excavate the data image of thought, theorists of technology and politics must mobilize frameworks from the empirical psy- sciences. Drawing from Michel Foucault, I claim that the psy- sciences have always facilitated political subjugation, and that such an excavation must therefore avoid subsuming political theorizations of mental labor power under normative and scientized notions of mentality. Invoking the recent work of N. Katherine Hayles and McKenzie Wark, I show how the psy- sciences may be deployed critically to express the operative functions of the data image of thought.

STANULOVIC, Jelena

University of Belgrade

TECHNOLOGY AND UTOPIA/DYSTOPIA

Kosta Stojanović, a Serbian mathematician, physicist, and economist in the early 20th century applied knowledge from various scientific disciplines, and from the framework of natural sciences, more precisely from physics and mathematics, interpreted processes in the social sciences such as economics, sociology, history of science, political philosophy. In 1910, he published the book Basics of the theory of economic values. In the book, he explained the basic principles of thermodynamics through the first and second laws of thermodynamics, and he applied the same ones in economics. We believe that Stojanovic had set the foundations of cybernetics by his multidisciplinary approach to his research and that he gave a significant contribution to the Serbian philosophy of both, technical and social sciences.

The subject of this paper is the explanation of Kosta Stojanovic's vision of science and technology (seen as a whole) on the example of the second law of thermodynamics applied in economics. Stojanović developed mathematical axioms explaining the society and economy processes being equal to the mechanical ones. The economy is socially oriented and, as such, is placed in the service of man as a moral-ethical being. Therefore, economic capital is not only physical but also intellectual and moral.

The scientific and technological progress of today will be explained through the view of Stojanović's analogy of the entropy law towards society and the economy. New sources of capital are represented with new technologies (created in the fourth industrial revolution) and as like they must be applied. The use of new technologies brings wealth that increases inequality, and inequality is the cause of the entropy of the system.

STEINERT, Steffen

Delft University of Technology

MODES OF PRODUCTIONS AND TECHNOMORAL REVOLUTIONS

Over the last 20.000 years, humanity has gone through dramatic changes in modes of production. From hunter gatherers, to farming, to industrial production, to knowledge production in the digital age. These changes in the modes of production were accompanied by distinct radical social and cultural changes. They were also accompanied by changes in moral values and value systems. For instance, Ian Morris (2015) claims that changes in modes of production lead to changes in institutions, which in turn leads to changes in moral values. Similarly, modernization theory (Inglehart & Welzel, 2005) proposes that economic development facilitates cultural changes that make certain moral changes more likely (e.g., changes towards individual autonomy, gender equality, and democracy). Technology seems to be one of the main drivers in these axiological changes because technology is intrinsically a part of modes of production. Therefore, the process can be called techno-moral change. Because the axiological changes related to changes in modes of production are deep and far-reaching, it could also be considered a 'techno-moral revolution'. However, the exact role of technology in such techno-moral revolutions is less than clear. Using changes in modes of production as a case, I will investigate the crucial role of technology in techno-moral revolutions. Along the way I will outline building blocks for mechanisms of techno-moral revolutions. This may also give us some pointers about future techno-moral revolutions: With advancements in AI and Robotics we seem to be on the brink of, or in the middle of, another drastic change in modes of production.

STEPHANOU, Henri

IHPST - CNRS - Paris 1 Panthéon-Sorbonne

THEORY, PRACTICE AND PROCEDURAL KNOWLEDGE IN THE MIDDLE-AGES AND MODERN TIMES

In this communication, we propose to explore the changing meanings of the conceptual couple theory / practice in the Middle-Ages and Modern Times, which resulted in Kant's dramatic reversal of Aristotle's position on techne, viz. that it is not part of practical knowledge but a simple "corollary" of theoretical knowledge. We show that this reversal is made possible by some key conceptual shifts in the latin reception of Aristotle, namely the recognition that each science has a speculative and a practical side, the expansion of the meaning of speculatio to encompass practical procedures, and also decisively the conception of God's intellect under the model of practical reason.

In modern Times, it is the advent of mechanics as the central discipline of natural philosophy that completes the migration of practical concepts to the theoretical domain. Mechanics always had a mixed status as both a mathematical science and as machine-construction craftmanship. Interpreting theorical activity as the mathematical investigation of reality poses specific stress on the traditional understanding of theory as a research of causes and principles. On the one hand, the analysis of reality as a machine or a mechanical system gives it the practical character of "problem-solving", and on the other hand, it redefines knowledge as a "reconstruction" of phenomena as God could have made it, which opens the "verum factum" / constructivist tradition.

We conclude by suggesting that these shifts are critical to the contemporary advent of procedural knowledge, in the form of computerized programs, as a universal model of knowledge, and to the consequent vanishing of any meaningful difference between science and technology.

STONE, Taylor

Delft University of Technology

Co-authors: Janna VAN GRUNSVEN, Lavinia MARIN

EDUCATION'S IMAGINARIES: THE ROLE OF ANTICIPATION IN ENGINEERING ETHICS EDUCATION

Over the past decade, the concept of Responsible Innovation (RI) has emerged as an overarching framework to assess and guide technological innovation in the European context. It therefore comes as no surprise that the concepts and methods of RI are being increasingly incorporated into engineering ethics education (EEE). As a practical and constructive approach to the ethics of technology, RI offers valuable new pedagogical directions and opportunities. However as a nascent concept, continued analysis is needed to understand how RI can – and should – shape EEE: What does it mean to train engineers to be 'responsible innovators'? How to translate rich theoretical debates regarding the ideologies of 'innovation,' the complex interactions between moral values and technology, and the epistemic uncertainty of technological development into an educational context? We propose that focusing on a key underlying concept and driver of RI – anticipation – offers a pathway forward; specifically, that a robust account of 'good' anticipation can assist with designing educational exercises. For this task, we bring together perspectives from RI, EEE, design thinking, and STS (e.g., sociotechnical vanguard visions and sociotechnical imaginaries), to conceptualize anticipation as an educational competency and learning objective. Rejecting the view that anticipation is a weak form of prediction, this paper defends the notion that anticipation should be understood as a reflexive act of problem framing grounded in epistemic humility. This virtue epistemological re-framing of anticipation can, in turn, allow for open and exploratory analyses of emerging technologies and their possible impacts, allowing for a reflection on what sorts of future(s) we want, and for whom. The paper will conclude with a brief sketch of the practical pedagogical directions emerging from this analysis: a move away from reductive or binary problem cases, and towards in-depth explorations of specific value-technology dynamics.

STORNI, Marco

University of Neuchâtel

THE SOCIAL VALUE OF TECHNOLOGY: THE CASE OF DENIS PAPIN'S DIGESTER

The digester, invented by Denis Papin in the late seventeenth century, is a rudimentary pressure cooker. The circulation of this technology in eighteenth-century Europe is an interesting case study to explore the question of the social value of technology from a historical standpoint. Three are the main questions that eighteenth-century users of the digester were confronted with:

(1) How can a technology be transferred from the scientific (expert) sphere to the quotidian (non-expert) sphere?

(2) To which extent should this technological transfer make innovation accessible to everybody, even the non-expert users?

In this paper, I present a few sources that discuss these questions in reference to Papin's digester, including papers by Johan Carl Wilcke, Giann'Ambrogio Sangiorgio and Martinus Van Marum.

As an answer to (1), all of the authors studied in the paper engaged in a simplification of the material structure of the digester to make it safer and easier to use. They also provided rules for using the device, in the form of recipes involving quantifications.

As an answer to (2), some users of the digester believed that technology had to be manipulated by experienced practitioners in order to foster social progress, while others argued that everybody should participate in the process of technological innovation, even the non-expert users.

The answers provided by eighteenth-century digester users to these questions showcase the multifarious ways in which the 'technological transfer' could be understood and implemented. Although nobody denied the centrality of making technology more accessible, especially through the definition of norms that clarify its use, the actual 'democratisation' of the digester remained a highly controversial topic.

STRIANO, Francesco

University of Turin

SHORT-CIRCUITS: REAL GUILT IN VIRTUAL ENVIRONMENTS

The critique of the 2WM, after dissolving the distinction between “first subject” and “second subject” by showing their inevitable overlapping, continues with this analysis of action in the so-called “virtual world”. The intention of this contribution is to show that the object of virtual agency is always and only the “real world”.

The cause that this presentation identifies as the main reason for the impression of acting – in a computer-based context – not on the world, but on a world is the emergence of the ontological paradigm of programming: ontology is, in the field of IT, an operational discipline that allows the creation, navigation, and manipulation of “worlds” that claim to be ontologically different from each other, thus giving the impression, in daily fruition of digital contents, of acting on closed fictitious worlds, not on the real one.

The impression of acting within output-closed systems is however undermined by short-circuits, i.e., moments in which, in the connection between the “two worlds”, resistance approaches zero, but no restraint is placed on the “information current” flowing between them.

This talk will refer to three short-circuits – three cases of violence perpetrated through different social networks (ask.fm, Facebook, TikTok) – to show how actions carried out in virtual environments, besides having real causes, also have real effects. The aim is to show how information technologies modify the media through which human agency is exercised, while they do not create any double or surrogate of the aforementioned agency nor does they allow agency to be exercised in another world.

SUBRAHMANIAN, Eswaran

Carnegie Mellon University

Co-author: Albrecht FRITZSCHE

NOVELTY AND TRANSFORMATION: THE POTENTIAL OF CATEGORY THEORY TO ADDRESS INNOVATION

Philosophers of technology have lately addressed innovation in various ways. A common problem, however is the ac-count of novelty given in this approaches. One way to solve this problem conceptually is to think about novelty as a re-configuration of resources in a way that has not been attempted so far. Recent theory of design, however, criticises this approach, as it limits innovation to a combinatorial exercise. Novelty is therefore rather addressed as “a step into the unknown” beyond the application of given rules on known resources.

In this situation, the question arises how this “unknown” can be referred to in a formal model. While mathematical set theory is sometimes used as an example to prove that novelty beyond re-combination is possible, its ability to charac-terise this novelty are fairly limited. Other phenomena in the natural sciences may provide more helpful examples, such as the transition from a stem cell to a fully functional organism (where novelty is interpreted as a hidden potential for functional differentiation in cells) or the explication of innovation genotypes in phenotypes (where novelty emerges from interactions with an environment). In addition to engineering design, these examples may also help to gain a bet-ter understanding of novelty arising in the arts.

As a general theory, to address such examples altogether, this paper suggests category theory (CT) as a meta-mathematical theory where all other mathematical formalisms including set-theory, logic, dynamical systems, vector spaces, etc. can be modelled. CT allows for composition and verification of behaviour (compositionality) of a system as mathematical description of the whole system understudy. In this regime, innovation is described transformatively: as choosing fragments of knowledge by a CT account of components and behaviour for exploration for verifying the compositionality of the system. We illustrate how CT gives account of innovation and novelty with various examples.

SULLINS, John

Sonoma State University

IMAGINING INTELLIGENT TECHNOLOGIES: THE AI WARS AND THEIR CONSEQUENCES (PANEL)

This panel will consist of the authors from the new book—Great Philosophical Objections to Artificial Intelligence: The History and Legacy of the AI Wars. The main arguments found in the book will be presented and questions and criticisms addressed. Computer scientists, mathematicians, logicians, engineers, and philosophers have been engaged in decades long imagining of technologies that automate various kinds of intelligences, from theorem proving and toy-world navigation, to lethal autonomous weapons systems and sex robots. This debate has at times been heated and will be referred to here as the AI Wars of 1950-2000, and their transformation into today's debates about AI. As AI is maturing into a ubiquitous technology, it is appropriate to look back at this history and asses the consequences of this intellectual debate. The AI wars influenced, and were influenced by, the in-hindsight ludicrous over-optimism of the early 1960s, the Lighthill [1973] Report and other disasters of the 1970s resulting in the AI winter, the enthusiasm around expert systems of the 1980s, and the gradual transitions toward artificial neural networks (ANNs) and applied robotics in the 1990s. By the early 2000s, the philosophical conflicts of AI's first 50 years were largely over. They ended not in victory for either side but in stalemate. In their place, new debates have arisen, about the nature of consciousness, and about both the ethics of AI and the possibility of AI systems themselves being ethical. Turing [1950] foresaw both of these developments, though he discounted their relevance to "intelligence" as he construed it. Here we ask why this happened, and how it affected both AI and philosophy. We will find that the early debates still present unresolved difficulties for modern AI and the ethical impacts of these technologies have now taken center stage.

SULLINS, John

Sonoma State University Department of Philosophy

AI APPLICATIONS AND THE AI ETHICS WAR

The great debates and discoveries of AI proceeded for nearly fifty years before anyone, outside of science fiction, spent much time thinking about the ethical impacts that these technologies might have on individuals and societies. Now it is one of the hottest topics where dozens of organizations are now jockeying to present AI guidelines and codes of conduct in building and governing AI. Of course, there were a few notable exceptions. Alan Turing (1950; see chapter 2) lists the "heads in the sand" objection as the second of the nine objections to machines having "intelligence" that he addresses. This objection to machine intelligence rests on the idea that the consequences of machines' thinking are just too terrible to conceive of, and so: "Let us hope and believe that they [the machines] cannot do so [i.e., think]" (ibid). Perhaps it would not be too much of a stretch to assume that this objection might also be extended to include the proposition that we should not build thinking machines even if we could technologically do so. Turing points out the obvious counterpoint—just because something seems unthinkable or undesirable does not mean that it will not come to pass. This is true, but it raises the question of why these machines strike some people as being a terrible idea. we cannot know if we will be infinitely helped by AI, or ignored by it and side-lined, or conceivably destroyed by it, or just ripped off by the companies that deploy AI applications.

SUSSER, Daniel

Penn State University

SUBJECTS AND OBJECTS OF PREDICTION

That we are objects of prediction is an increasingly mainstream concern. As individual and population-level data proliferates, data collectors are able to conduct more and more sophisticated forms of data analysis, giving rise to predictions about everything from a person's creditworthiness to the healthcare costs they are likely to incur, from their odds of success in college to the likelihood they will commit a crime. Data is also used to predict what people want. Targeted advertising systems attempt to predict people's preferences and desires in order to tailor marketing appeals. Recommender systems use such predictions to personalize people's digital environments, surfacing content, products, and services geared toward their individual tastes and interests. At a more granular level, machine learning and artificial intelligence tools promise to predict—and to influence—individual behavior. And if prediction is a precursor to control, there is reason to worry about what Shoshana Zuboff calls the "instrumentarian power" these technologies of "behavior modification" enable.

Amazon has the products we want. Google will find the information we need. Facebook will engage us. Though this sounds nice, stated in the abstract, it is antithetical to practical reason: if our desires are satisfied no matter what we do we needn't try other things, or—importantly—to ask if they are good desires in the first place.

SZABÓ, Máté

Mathematical Institute, University of Oxford

THE CURIOUS CASE OF KALMÁR'S FICTIONAL COMPUTERS

László Kalmár, the eminent Hungarian logician, began to teach programming at the University of Szeged in1957. Even though the country had very few computers at the time, they were almost all different makes. This presented a serious challenge to educators when deciding which machines' assembly language to teach, as it was not advantageous to teach the machine code of any of the concrete machines, nor feasible to survey all of them. As a pedagogical solution, Kalmár introduced his so-called "fictional computers," a set of assembly languages (with or without index registers, and with one, two, three or four address instructions), at the very beginning of the 1960s. These fictional languages covered all of the assembly languages of the different machines available at the time. While some of the fictional instructions were identical to instructions of concrete computers, others were introduced purely for pedagogical reasons and known not to be available on any actual machines. What makes Kalmár's fictional computers interesting in the context of this panel is that they (or certain features thereof) lend themselves naturally to the multiple characterizations above at the same time. The subset of those machines that are derived directly from concrete computers can be considered as technical artifacts. The entirety of the fictional languages can also easily be seen as more or less accurate models of computers and their assembly languages, and thus, possibly, as fictional artifacts. In addition, it can even be argued that those languages that were introduced for merely pedagogical purposes could be considered as (abstract or fictional) mathematical entities. This multiple interpretability of Kalmár's fictional computers makes them an ideal testing ground of different intuitions in this context. In my presentation, I further explain the historical context that necessitated the introduction of the fictional computers and elaborate on the features that open them to these multiple interpretations.

SZALAI, Judit

Eötvös Loránd University, Budapest

EXPLAINING ARTIFICIAL AGENTS' BEHAVIOUR

Members of our species are used to functioning in a world populated by other human agents. For as long as history reaches back, besides non-agentic components of their environment, humans have only had to count with their peers as decision-makers whose choices facilitated or constrained their own actions. This situation is presently under radical change. With the emergence of artificial intelligence no longer merely functioning as an efficient instrument but also making choices for humans, the everyday experience of human agency is bound to change.

In interaction and cooperation with other humans, we normally rely on prediction and explanation, based on 'folk psychology´, i.e., the attributions of mental states to other agents. These attributions are made possible by the fact that, being members of the same species, we share the same kind of physical-biological body and mental make-up. Since such analogous thinking, relying on a theory of mind, is not an option with non-human agents, we either have to dispense with action prediction and explanation, or find appropriate epistemic channels to secure some measure of predictability and explainability in interaction with artificial entities.

The first path doesn't seem to be open. People are folk psychological reasoners. Folk psychology is not just a matter of convenience, it is ineliminable. According to anthropological studies, we already attribute mental state analogues to AI systems. (Interestingly, according to empirical evidence, in machine cases, our folk psychology is subtly different from folk psychology concerning other humans. When people use reasons explanations for the behaviour of robots, belief-based reasons are more frequently offered than desire-based reasons, which is the opposite of the human case.) This paper addresses the extent to which humans interacting with AI-based devices should be able to predict and explain their behaviour and how such understanding could be facilitated.

SZENDY, Peter

Brown University

ICONOGENESIS AND THE EVOLUTIONARY PARADIGM

In his “iconogenetic” approach to the life cycle of images, Simondon introduces two intriguing notions: one—neoteny—is borrowed from evolutionary biology; the other—imago—refers to the ontogeny of species like butterflies and designates the final stage of their metamorphoses. What is a neotenic image? And what does it mean to consider (quasi-tautologically) that an image reaches its imago? Simondon’s approach seems unique in the history of philosophical discourses about the image. His use of biological paradigms opens the perspective of an ecology of images at a time when images—with billions of them circulating every day on social media—are overflowing our capacity for storing them or paying attention to them. Indeed, with the development of what is known as “machine vision” (what Trevor Paglen has aptly called the “invisible visual culture” of images produced by machines and for machines), Simondon’s approach to images seems more relevant than ever.

SZERSZYNSKI, Bronislaw

Lancaster University

EARTHLY MULTITUDES AT THE END OF THE WORLD

What kind of image of the human is appropriate to the human condition that terms like 'the Anthropocene' try to name – one in which human and Earth history are no longer separable (Palsson et al. 2013; Chakrabarty 2009)? In The Human Condition, Hannah Arendt (1958) decomposed the vita activa into labour, work and action, and offered us three corresponding images of the human being. Animal laborans is the human engaged with 'earth' through the labour involved in meeting needs, and is a 'servant of nature', understood as an endless life process. Homo faber, the human being as the fabricator of the enduring human 'world', conquers nature and situates themself as its 'end' and master (Szerszynski 2012). Finally (to switch to Greek), zoon politikon, the human as political animal, appears in (and renders meaningful) that world through speech and deed and in concerted action with other persons. In this paper I suggest that we now need a new image of the human, one that cuts across these categories. I consider the figure of Homo gubernans, the helmsman as Serres (1995) analyses them, who mixes their agency with that of the elements 'in a series of circular interactions' and is thereby neither master nor servant (Szerszynski 2012). I relate this figure to the idea of the 'earthy multitude' (Clark and Szerszynski 2021), a collective of human actors that by trial and error has learnt the crafts involved in responding to the opportunities and challenges presented by processes of planetary self-differentiation and self-ordering.

TABERY, James

University of Utah

THE PARALLEL LIVES OF THE BEAD ARRAY

"Personalized medicine" or "precision medicine" is often characterized as an effort to “individualize medicine based on a patient’s unique biology, environment, and lifestyle.” In reality, the efforts are almost entirely about genetics. There are a number of reasons for why this is the case; this paper explores one—a technological reason—using the bead array as an illustrative example.

The bead array was a revolution in sensor technology at the end of the 1990’s. David Walt and his graduate students at Tufts University developed a method for embedding microbeads in microwells at the end of fiber optic bundles. Substances could be affixed to the beads before they were set in place, which meant each bead in each well was a sensor. A fiber optic bundle just 1 millimeter across could hold tens-of-thousands of sensors, paving the way for big data science. The device could be used for multiple purposes, depending on what was affixed to the beads. Attach different fluorescent dyes, and the bead array could serve as an “artificial nose” designed to sniff out different chemical exposures in the environment. Attach different synthetic oligonucleotides, and the bead array could determine what genes were expressed in a biological sample.

The company Illumina formed in 1998, licensing the bead array with the intent to revolutionize both the genetic and the environmental sensor marketplaces. The bead array, however, lived parallel lives. The genetic applications formed the core of a series of devices that quickly made Illumina the world leader in genomic data technologies. The artificial nose was abandoned within just two years.

This paper tells the story of the parallel lives of the bead array, examining the technical and financial forces that make it far easier to do big data science on people’s genomes than on their environments. Understanding those forces helps elucidate why personalized/precision medicine, a big data activity, prioritizes genetic data over environmental data.

TAMBASSI, Timothy

Università di Salerno

ON THE INFORMATIVENESS OF IT ONTOLOGIES. FROM THE REPRESENTATION/REPRESENTED DICHOTOMY TO ONTOLOGICAL CATEGORIES

In the domain of IT/computer ontologies [ICOs], informativeness generally indicates the need to systematize contents in a way that should be meaningful for the final recipients of any ontology. This is meant to improve the quality of the ontological contents and the mutual understanding between human beings, between human beings and software systems, and between software systems themselves. This talk aims to discuss whether this notion of IT/computer informativeness requires some sort of clarification and/or revision, in the light of two critical issues that emerge from the analysis of ontological contents and systematizations. The first issue concerns the epistemological discrepancy between human beings and software systems in interpreting ontological contents. More specifically, it will be emphasized that human being can have access to entities represented in ICOs, and software applications cannot. The second issue arises when we consider that while the fundamental components of ICOs are fixed, the same cannot be said for the entities we might want to include within them, which therefore should be systematize differently depending on the IT ontology at stake.

THIJS, Ole

Wageningen University & Research

Co-author: Vincent BLOK

REHABILITATING LOCALITY IN PHILOSOPHY OF TECHNOLOGY: THE CASE OF SUSTAINABLE TECHNOLOGY

Philosophers of technology such as Stiegler argue that in the current 'globalized' age, where modern technology constitutes a technosphere, there is no room for locality, ethnic groups or ecosystems as determining factors of technology anymore. An example of anti-local technology is vertical farming, which prides itself in its ability to be deployed anywhere in the world, regardless of local weather, soil and wildlife. It is supposed to decrease agricultural land usage by up to 99% via advanced climate control and AI-driven machinery (Plenty 2021). Efficient as they may be, anti-local technologies can also be criticized: although they reduce resource use and waste production, they are not regenerative by design, i.e., not actively ecologically and socially beneficial. In order to become regenerative, technologies must consider their 'place' within the ecosystem (Hayes, Desha, and Baumeister 2020, 8). This raises the question how locality can be rehabilitated in the current globalized technosphere.

In order to answer this question, we 1) explore the debate on locality and non-locality in Stiegler's interpretation of Leroi-Gourhan's theory of milieus; 2) develop a philosophical understanding of 'place' through a reading of Heidegger's notion of Ort; 3) develop this into a concept of locality beyond the non-locality of the technosphere. Our assumption is that whereas the non-locality of the technosphere presents a world (i.e. an imaginary) of possibilities that are not necessarily beneficent to the earth, the concept of locality can inform regenerative design by 'reconnecting' technology to the earth as its material substrate (Blok 2016). Finally, we demonstrate the potential of the locality of technology in an 'emancipatory' reconstruction of the vertical farming case.

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THUERMEL, Sabine

SOCIOTECHNICAL IMAGINARIES AND THE ART OF INTERAGENCY

The starting point of the Smart City and similar innovations is very often a technological imaginary, a purely technical vision embedded in a narrative to convince the public and especially the customers of its merits. In a pluralistic society it would be more adequate, if all the stakeholders could participate in the design of smart cities. This paper wants to demonstrate how the technology used to “engineer the not yet” in current smart systems approaches could be used to “experiment with the not yet” in times when the stakeholders have to be socially distanced. The systems underlying current smart system approaches could be used to generate alternative futures. Anticipation and speculation in a Smart Society, an alert one to the uncertainties of future developments, could profit from ludic endeavors not only in the case of designing Smart Cities. Other technical imaginaries could also be simulated and tested in different scenarios by smart and playful communities. Based on early work on the “homo ludens” by Huizinga (1939), Callois (1958) and others a taxonomy of ludic interaction helpful for experiencing sociotechnical imaginaries will be presented. As Nguyen (2020) states: in games agency may be experienced as an artform. In competitive and in cooperative games interagency becomes an artform as well as an option to explore specific sociotechnical imaginaries.

TJØSTHEIM, Ingvar

Norwegian Computing Center

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ART AND TECHNOLOGY

Human sovereignty in a lock-down situation: is there room for privacy?

Many countries are currently using tracing apps, which can be seen as an examples of contemporary surveillance technology, to help track close contacts with contagious COVID-19 individuals. In Singapore, the government initially informed the population that the TraceTogether app would only be used to alert citizens about close contacts with others who had tested positive for COVID-19. Later, the Singaporean government decided to share the tracing app data with the police "for the purpose of criminal investigations". This could be interpreted as a breach of the individual sovereignty of citizens, which Floridi (2020) describes as the ultimate form of control. The right to privacy can be seen as an essential aspect of dignity, integrity, personal autonomy, and independence (Bloustein, 1964; Rubenfeld, 1989). In the paper, we present data on citizens' opinions of the use of a similar tracing app in Norway, a country with a low COVID-19 infection rate and number of deaths. We tested whether information about possible other uses by the government influenced willingness to download a tracing app. We also questioned the degree to which respondents were in-favour of using strict legal force vs. recommendations. We discuss our empirical findings in terms of privacy and its role in maintaining individual sovereignty. Key findings concern how citizens distinguish between data use for creating digital profiles versus other purposes, and whether or not their attitudes to restrictions such as curfews are related to their views on other aspects of individual sovereignty.

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RODRIGUEZ-NIKL, Tonatiuh

California State University, Los Angeles, Department of Civil Engineering

AN ENGINEERING PERSPECTIVE ON THE PANDEMIC

This presentation uses the present COVID pandemic as a platform for evaluating the EWT. The first part illustrates four perspectives about the pandemic from an engineering mindset: (a) the typical engineering definition of risk, (b) the use and misuse of models, (c) the behavior of nonlinear systems, and (d) the evaluation of noisy data. Such considerations show how experts and the public could have made better decisions if they had been informed by (and believed) the EWT.

The second part explores two limitations with the goal of delineating the proper scope for the EWT. First, it is unclear whether these habits of thought are particular to engineering, or whether a different classification is more appropriate. Second and more important is the question of the appropriate societal response to the insights offered by the engineering way of thinking. I argue that rational interpretation of facts alone cannot inform actions without also incorporating values. The EWT thus offers limited insight into which overall political or moral objectives we ought to be pursuing as a society.

The third part is a forward-looking conclusion concerning climate change. Although there are differences, both the pandemic and climate change involve risk, models, nonlinear systems, and noisy data. It is thus interesting to explore what lessons the EWT offers about the pandemic and in what ways these lessons transfer to the challenges surrounding climate change.

TOSCANO, Javier

Independent researcher

TOWARDS A NEW CRITIQUE OF INFORMATION. THE SYMBOLIC STRUCTURE OF OUR TECHNOLOGICAL DRIVE

This paper develops a critical analysis of the notion of information. It presents first its current understanding as a "thing" that fuels information systems (Buckland 1990, 2017). While showing that this idea already diverges from the proposition of the concept elaborated by Claude Shannon in his mathematical theory of information from 1948, the paper marks its limits and develops instead its possibility as a "milieu", as it was proposed in Tiziana Terranova's Network Culture in 2004. But this proposition is also partially discarded, in favor of a search that aims to shed light on what it is that we actually undertake when we deal with something we obstinately call "information". The paper then revisits elements from the early cybernetic conception –e.g. noise, redundancy, self-organization– in order to delineate a technological habit and its current practices and developments, revealing thus how the term expands an ideological domain and a communicative utopia. Without such an analysis, conceptual clusters such as "Information Age" (Castells 1996), "Informational Capitalism" (Fuchs 2005, 2008) and similar terms threaten to become just self-serving conceptions that articulate different phenomena without a fundamental criterion at hand. Drawing on an early critique by Scott Lash (2002), this paper contributes to yet another critical development of the notion of information, working through the pathologies of neglect that need to be overcome to understand an abstract compound that drives our imagination and affects the ways we deal with current cultural and socioeconomic structures of distinct sorts.

TROMP, Hans

Radboud University

Co-author: Carlo IERNA

AN INTENTIONAL CAUSAL EVOLUTION (ICE) FRAMEWORK OF ARTIFACTS BASED ON ARCHEOLOGICAL MODELING

The Intentional Causal Evolution (ICE) theory identified by (Houkes and Vermaas (2010, 77–100) in the context of oriented Dual Nature of Artifacts program (DN-program) remained almost hidden in the epistemic and ontological orientation of that program. The strict analytical analysis resulted in three sets of reverse engineering orientated formal function ascriptions by designers, users and analysts (id.: 100). In contrast, to the formal analysis we consider the intentions of functional use and design of artifacts as cognitive actions in the wider context of material culture. We will show that a compact conceptual framework derived from David L. Clarke's (1968) multidisciplinary Analytical Archeological schematic model of dynamic equilibrium between a subsystems provides a useful reference to analyze the causal processes of artifact evolution:

[…] processes by which human individuals and communities engage with the material world through actions that have simultaneously a material reality and a cognitive or intelligent component. (Renfrew 2007, 104)

Based on this definition analysis through this conceptual approach became known Material Engagement Theory (MET). The framework with the cognition processes embedded in material-culture, economic, social subsystems will be related to the grounded action cognition analysis of engineering design processes. More specifically the application connected Situated FBS models of engineering processes (Gero and Kannengiesse 2002; Rosenman and Gero 1998; Howard et al. 2008; Cascini, et al. 2013) match this cognition process approach. In our model we will focus on the cognitive aspects of artifact engineering design processes where the various factors identified in Clark's framework come together as causal and environment factors.

The resulting grounded, by underlying causal processes, Intentional Causal Intentional Evolution framework will be illustrated by a couple of historical examples from stone age into modern time.

The main differences with the DN-program, and the integration of the FBS models, will be indicated.

TROMP, Hans

Radboud University

UNDERSTANDING AND MODELLING IN ENGINEERING DESIGN

The purpose of this contribution is to demonstrate how a pragmatic process-oriented approach, including the intentional aspects of artifact applications, can be applied to take up two key points left open by the Dual Nature program regarding engineering design:

1. Kroes identified the logical gap between functional and structural descriptions of artifacts, the is-ought dichotomy as the main problem: (Kroes 2012, 42) and concluded that: a philosophy of making is badly needed (id.: 158).

2. In The Conceptual Elusiveness of Engineering Functions,(Vermaas, van Eck, and Kroes 2013) identified: effect function, behaviour function, and purpose function as the three archetypical notions of engineering functions. Based on the conceptual structure of the DN-program they concluded that: purpose functions cannot be accepted without jeopardizing the dual nature analysis of technical artefacts. (id.: 176) This confirmed Vaesen's (2011) comment on the lack of relations with the application context.

Because basically there are only three Material Structure transformation options available, an action cognition intelligible recurrent process of making is applicable considering engineering design as an action cognition processes between an application context and a realization infrastructure. Therefore, properly understanding (Henk W. de Regt 2015, 2017) the artifact's purpose, the applicable Operational Principles and more specifically the rational and tacit levels of Material Structure Behaviour models is essential for innovative engineering design. The central role of the notion understanding is also most relevant in steering the engineering process cycles direction by predictive qualitative modelling. (H.W. de Regt 2017, 106–8) Moreover, the pragmatic model-oriented approach can be used to link philosophy of technology to similar approaches in philosophy of science.

Borrowing in the title the use of "Twofold Nature", from Lyn Baker's comment on the DN-Program, (Baker 2006) indicates the pragmatic orientation and confirms the intentional and application oriented character of engineering design.

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TSUI, Shelly

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Co-author: Gunter BOMBAERTS

CULTURES AND TECHNOLOGY: THE IMAGINARIES OF INNOVATING TOGETHER (PANEL)

Social, economic, and private life have become deliberately interwoven as the way forward to the future advancement and survival of humankind. For the last five decades, movements that have called for the democratization of technology and innovation have led to the development of concepts, theories, and practical approaches to better integrate industry, governments, academia, and society. Whether it is to develop novel technoscientific solutions or to address wicked societal problems, different forms of participatory approaches such as public engagement, co-creation/co-design, Responsible Research and Innovation, have been promoted by corporations, public policymakers, and citizens in Europe and around the world.

Within each participatory approach and endeavor, imaginaries of desirable practices and futures for firms, citizens, academia, and governments are implicitly or explicitly articulated, and subsequently reified. Perhaps they demand a certain kind of interaction, or lead with specific norms, values, and vision of "good" and "fair" progress in innovation. Regardless, visions can be a powerful force behind the formation of new ways to order social, economic, and political life and culture. To explore how these visions emerged and their consequences, this panel gathers three contributions that conceptually and empirically unearth what these visions are, and what expectations and roles emerge through the interweaving of innovation and society.

In the empirical study, "Innovation imaginaries and the future of infrastructure maintenance", Cuevas-Garcia, Pepponi, and Pfotoenhauer explore how new ecosystems are developed along aside the creation of technologies in sewage maintenance robots. Through their analysis, the authors emphasize how new technologies also bring forth infrastructures and puts the spotlight on the implications for stakeholders. In "Innovation Union?", Papageorgiou and Pfotenhauer examine how the European Institute for Innovation and Technology and its network of "Knowledge and Innovation Communities" offer a window into the evolving vision of "European" innovation in the European Union. Their research approach emphasizes looking the institutional set-up, discourse, and practices of the organization come together to stabilize a European vision of innovation. The final contribution, "The Citizen-Subject Imaginary" identifies how the imaginary of the citizen-subject emerges from a living lab project in social lighting. In this research, Tsui shows through their involvement in a living lab project, the residents inhabited a dual role: that of a citizen with a responsibility towards participating in the development of their city, and that of a subject who was simultaneously observed in an experiment.

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THE EMERGENCE OF THE CITIZEN-SUBJECT IMAGINARY

Living labs are an increasingly utilised tool in which citizens are becoming involved in experimental technological innovations to solve societally relevant. In a sense, to include end-users in the innovation process of a product or service has become policitised—it is seen as a potential policy tool that can improve engagement with diverse stakeholders, especially the public, according to the European Commission (n.d). The living lab approach has become a social tool through which citizens are expected to become part of a collective way of dealing and solving societal. With this comes the clear transformation of the citizen into an active citizen-subject: a citizen who participates in a living lab while at the same time, is a subject of the lab. This paper investigates the implications of this new role, zooming on issues such as such visions of participation and how it is performed when inhabiting two distinct roles. To this end, the paper studies the project “Jouw Licht op 040”, a public procurement of innovation initiative established by the municipality of Eindhoven. The findings identified the various roles that the citizen-subject performed, and how these roles were shaped by the expectations of the stakeholders involved, rather than the citizens themselves.

TURNER, Ben

Lecturer in Political Theory

TECHNOLOGY, MONEY AND FREEDOM: BEYOND NEGATIVE AND POSITIVE LIBERTY

It has become a commonplace assertion that contemporary technological development could have severe consequences for freedom. However, political philosophy has yet to extensively consider how technological change challenges existing conceptions of freedom. This paper aims to begin to address this problem. It will claim that the common distinction between negative and positive freedom collapses in light of claims that technology constitutes, rather than alters, human capacities. Negative and positive accounts of freedom define it as, respectively, the absence of external and internal constraints on action. The paper will argue that if human capacities are shaped by their technological context to the extent that a clear distinction between internal and external constraints disappears, then these conceptualisations of freedom cannot account for how technological change might interfere with liberty.

The paper will begin by developing the claim that technology shapes human capacities by utilising money as an exceptional technology that reveals something about technology more broadly. Our access to and use of money has an impact upon our cognitive capacities and freedoms, and therefore exemplifies how technology shapes our liberty to navigate choices autonomously. It will then show how money is reduced to means in discussions of its relationship to negative liberty, and how positive accounts of freedom abstract from money's role in forming our capacity to act autonomously. The paper will then give an alternative account of the relationship between money and freedom by considering how it acts as an external constraint that shapes internal capacities, and how these internal capacities have consequences for our relationship to external opportunity. The digitisation of money and the automation of processes that facilitate our access to it demonstrate that accounting for how technological change might impact freedom requires a revision of our conceptions of liberty alongside it.

UMUT, Tuba Nur

Ankara University

How Do Technologies Affect Discussions in Moral Philosophy? An Example of Free Will

We can address the transformative effect of technologies at several levels. While technologies transform our experiences, they also transform notions in classical philosophy such as the conception of human being. Technologies, with their transformative dimension, also affect the discussions in moral philosophy, one of which is the issue of "free will". In many philosophical debates concerning the purpose of human, the meaning of life, and the problem of evil, free will has taken an important place in the history of philosophy since ancient times. Free will has been considered as the basis of moral responsibility, which is regarded as a sine qua non of morality. Even when causation and determinism were the dominant views, philosophers made room for free will, keeping it out of physical causation. Free will, which was previously discussed only in the fields of philosophy and theology, has now become the subject of many sciences from biology to psychology and contemporary physics. Scientific developments, especially the indeterminism notion in quantum physics, recent developments in neurobiology (Benjamin Libet's and Haynes's experiments) have added new dimensions to free will discussions. Besides these, technological developments also have consequences for free will discussions. We can say that these consequences are visible in three fields of technology: human enhancement technologies (HET), artificial intelligence (AI), and moralizing technology (MT). In this study, I will discuss the third issue regarding moral agency of technologies in terms of three questions. 1- Will transferring our moral responsibilities to technologies distract us from being agents who act with free will? Does MT mechanize us? 2- If the ultimate goal is to ensure a moral society, is MT a goal that moral philosophy should support? 3- Should we limit the agency of technology to make room for free will?

URUEÑA, Sergio

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ANTICIPATION AND MODAL POWER: OPENING-UP/CLOSING-DOWN THE MOMENTUM OF TECHNOLOGICAL DEVELOPMENT

The last three decades have been particularly fruitful in terms of identifying and theorising the functions that future representations play in the co-production and coevolution of sociotechnical realities. The co-creation and mobilisation of future representations are nowadays addressed from three inherently heterogeneous approaches:

(i) Descriptive: They seek to elucidate how future representations—under the form of 'scripts', visions, expectations or sociotechnical imaginaries—are simultaneously products and producers of sociotechnical realities (e.g. how they mediate the co-production, cultural appraisal, assessment and use of technologies).

(ii) Critical-normative: They focus attention on assessing those future representations that de facto constitute our realities and/or on proposing more ethically-politically and socio-epistemically robust alternative ones.

(iii) Methodological-interventive: They aim to enact reflexivity and enrich the future representations at stake through the application of anticipatory techniques such as foresight (e.g. Anticipatory Ethics, Anticipatory Governance, Responsible Innovation frameworks/proposals).

Drawing on advancements in philosophy of technology, futures and anticipation studies and STS, this paper argues that both the future representations that are the target of '(i)' and '(ii)' and those that support and are mobilised by '(ii)' and '(iii)' are part of the anticipatory political games of "opening-up/closing-down" the momentum of technological development through the mobilisation and exercise of what Steve Fuller has recently termed "modal power" (i.e. the modulation of what actors consider "(im)plausible" and/or "(un)desirable"). Any attempt to (i) understand, (ii) criticise, or (iii) interventively engage with the politics of "opening-up/closing-down" the momentum of technological development requires engaging with the creation, mobilisation, and execution of modal power through anticipations. This conceptual avenue will prove particularly helpful in framing and comprehending the political-epistemic radicality that technological imaginaries hold in the constitution of our sociotechnical orders.

VAN DE POEL, Ibo

TU Delft

IMAGINARIES AND VALUE LOCK-IN

In the literature on technology dynamics, the notion of 'lock-in' has been used to describe how certain technologies may get locked-in due to such phenomena as path-dependency, increased returns to adoption and network externalities. Roughly, the idea is that a technology gets locked-in if it continues being used despite the availability of an alternative technology that would perform better. I am asking the question whether it makes sense to talk about 'value lock-in.' To make sense of that notion, I propose to understand values – in line with pragmatist philosophers like Dewey – as responses to morally problematic situations. According to such an understanding, new types of morally problematic situations would require new – or changed – values. But what if values do not change in response to new moral problems: can we then speak of value lock-in? (Think, for example, of the failure to change the values on which one acts in response to climate change?). And if indeed value lock-in exists, what are factors contributing to it? I will in particular investigate whether imaginaries – here understood as institutionally and politically entrenched visions of the good life and the good society – may cause value lock-in, e.g. because they are expressions of (collective) identity and cannot be changed individually but only collectively.

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VAN DE POEL, Ibo

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IS VALUE CHANGE CONCEPTUAL CHANGE?

Philosophers of technology have pointed out that technology may lead to technomoral change; conversely the possibility of future value change seems to have implications for how we should design technologies today in, for example, value sensitive design. In this contribution, I propose to understand value change as 'a change in evaluation (value judgements) that tracks a change in how valuable things (really) are.' So understood, it has a 'mind' and a 'world' component: the idea is that the change in evaluation ('mind') tracks a change in what is (really) valuable ('world'). One of the challenges for any plausible philosophical account of value change then is to explain how this 'mind' and 'world' component are connected. I will explore whether and to what extend an understanding of values as concepts is helpful for this explanatory task. Many moral philosophers think of values, like for example justice, as concepts. Concepts are often considered the building blocks of thinking, and in that sense, they are clearly 'in the mind.' At the same time, they refer to or categorize entities or phenomena in the outside world; they thus seem to have both a mind and a world component. If concepts are individuated by their meaning and referent, as is often thought, value concepts can change either because their meaning changes or because their referent changes (or both). I explore whether such conceptual changes can indeed be understood as cases of genuine value change.

VAN DEN BERGH, Kristof

Aspiring PhD researcher at VUB (Free University of Brussels)

REVALUATING INSTRUMENTAL VALUE IN ENVIRONMENTAL ETHICS

Utilitarianism has oftentimes been criticized as incapable of providing convincing solutions to the environmental issue because it only grants instrumental value to non-sentient nature. In this paper, I elaborate and analyze different meanings given to the notion of instrumental value. Oftentimes instrumental value is seen as all value which is not intrinsic, and from the term instrumental, opponents of utilitarianism often derive that this means we are free to use non-sentient nature as a mere instrument. I introduce a distinction between extrinsic value and instrumental value: the former being the broad category of non-intrinsic value, the latter entailing active usage for an intended end. By using the example of a pacemaker, which commonly gets assigned a merely instrumental value, I demonstrate that such a status of instrumental value, in common morality, does not imply a total freedom to do whatever one wants with the instrumentally valuable. I further illustrate this conclusion by the example of the early 20th century of Gifford Pinchot's massive, successful reforestation program driven by utilitarian arguments and the instrumental value of forests. My final example is the concept of sustainable intensification of agriculture: environmental impact studies have demonstrated that by further intensifying our agriculture, we can drastically lower the amount of space it requires, and thus, we can start reversing deforestation. Combining the examples of the pacemaker and sustainable intensification allows me to conclude, firstly, that from the absence of intrinsic value in an entity, we cannot derive a permission to use that entity as we please; and secondly, that a thorough instrumentalization of limited parts of nature might be necessary in our transition to a sustainable society. Thus, an ethics that would radically oppose such instrumentalization can be considered as more problematic than utilitarianism.

VAN DER PUIL, Roxanne

Eindhoven University of Technology

Co-authors: Uwe MATZAT, Lambèr ROYAKKERS, Andreas SPAHN

CAN SOCIAL MEDIA PLATFORMS BE (MORE) DEMOCRATIC? USING THEORIES OF DEMOCRACY TO ASSESS THE DESIGN OF SOCIAL MEDIA PLATFORMS

Recent discussions on voter fraud of the 2020 U.S. elections and ongoing discussions on the COVID-19 pandemic on social media platforms demonstrate how disruptive technologies can threaten democratic values. Free speech that is hateful, misleading or blatantly false, oftentimes conflicts with values such as equality, freedom, truth and consensus. This has amounted to public pressure to better regulate and design social media platforms. In response to this pressure, platform owners are making changes to their news feed, tweaking algorithms, installing third-party fact-checkers and writing new policies to democratize social media engagement.The question is how democratic these design changes and policies are and which alterations can make social media platforms even more democratic. In this article, we offer responses to the question 'what does a democratic regulation and design of social media entail?' Building on the work of Bozdag and van den Hoven (2015), we present a systematic evaluation of the current design choices and policies of social media platforms utilizing theories of democracy as defended by John Stuart Mill, Jürgen Habermas and Ernesto Laclau and Chantal Mouffe. As all theories offer different outlooks on democracy, all theories present alternative implications for regulating and designing social media platforms. To make this explicit, we translate each theory of democracy into several normative design rules, explicate the design implications of these rules and finally exemplify which design choices and policies fit these rules and implications. By systematically reviewing social media platforms as a whole, rather than specific tools or aspects, we underline the need for designers and policymakers alike to become (more) aware of the varying democratic norms and implications these can or potentially should have for the infrastructural design of social media platforms.

VAN GRUNSVEN, Janna

TU Delft

TECHNOLOGY, DISABILITY, WELL-BEING

When we anticipate the socio-ethical implications of emerging technologies, those anticipations typically tap into already existing socio-technical imaginaries. Socio-technical imaginaries refer to entrenched, stable, and societally accepted "visions of desirable futures … attainable through, and supportive of, advances in science and technology" (Jasanoff 2015, 25). In presenting societally accepted visions of newly emerging technologies, it is not uncommon for those technologies to be framed as capable of contributing to the mental or physical well-being of disabled persons; cochlear implants, exoskeletons, and sex-robots serve as prime examples here. In my presentation I argue that this move often reflects a pernicious ableist outlook on mental and physical well-being. I furthermore argue that when this ableist outlook is operationalized in technological innovations, these innovations threaten to reinforce precisely the sorts of inequities they are allegedly designed to help mitigate. Given the pervasiveness of the ableist framing of technology in contexts of mental and physical well-being, I also argue that the field of disability studies should play a much more prominent role in how we teach and think about technology in contexts of mental and physical well-being than it currently does.

VAN HEUVELN, Bram

Rensselaer Polytechnic Institute

THE FOURTH WAR: RATIONALITY, RELEVANCE, AND CREATIVITY

AI imagines machines that share our cognitive abilities. The frame problem begins here. It is the problem of what makes us cognitively special — of what makes us so smart. It is, therefore, a problem concerning rationality, or good reasoning. But where this good reasoning is applied in the frame problem is a bit surprising. The problem's central issue involves the notion of change: all living things live in changing environments; and among thinking things, some of the most important changes that they must deal with are changes they themselves bring about — moving from place to place, for example. However, more than change is involved. To successfully handle any change, thinking things must update what they believe after experiencing a change. Perhaps the major difficulty wrought by the frame problem is questioning how this updating should be carried out. The frame problem is a complicated problem where the power of our imagination to dream of machines skilled at operating in complicated environments runs up against engineering and computational limits. The Frame problem was never resolved and presents a strong limit to what the current crop of AI applications can achieve.

VAN LIER, Maud

University of Konstanz

UNDERSTANDING TECHNOLOGICAL CONSEQUENCES THROUGH IMAGINATION

In january of 2020, I attended a talk of Tsjalling Swierstra during a PhD course on Responsible Innovation. Swierstra showed a short movie, in which he and his team graphically envisioned what would happen when we resurrected the Dodo. In their scenario, we would be overrun by dodos that we would have to take care of, without there being additional benefits. The reason that Swierstra showed us this movie was that when dealing with technological innovation, we cannot oversee all the possible consequences that will result from it. One way to address this difficulty is by thinking through the possible consequences in the form of a scenario, which will show us the potential ethical and practical challenges that we face by making certain scientific discoveries. A limitation to this approach, however, is that just one potential scenario will already take up a lot of time and money.

Even so, these kinds of think-throughs are crucial for technological innovations, because we often cannot predict what the actual consequences of these innovations are. What we can do, however, is construct as many imaginative scenarios of these consequences as possible. During my talk, I suggest that practical constraints that scientists face in constructing these scenarios could be addressed by transferring the tasks of writing out the possible scenarios to writers, filmmakers and artists. Besides making use of the already existing corpus of science fiction - which, as Gunkel (2012) & Zwart (2019) show, already influences fields like ethics and biology - researchers could employ these artists to construct possible scenarios based on the framework and additional knowledge provided by the researchers. During my talk, I show how this collaboration might work and under what conditions it might be beneficial to research.

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Zwart, H.

VAN UFFELEN, Nynke

TU Delft

QUESTIONING HYDROGEN STORAGE IMAGINARIES: FROM ENERGY JUSTICE FRAMEWORKS TO ETHICAL QUESTIONS

One of the biggest challenges of our time is how to enable a transition from a fossil based energy system to a 'green' and sustainable one. Renewable energy plays a key role in almost every energy-related technological imaginary. Due to the intermittency of wind and solar energy sources, our energy future remains highly dependable upon technological solutions for energy storage. A promising storage solution is converting power to hydrogen, which can be stored, transported and turned back to power at a later time. Large socio-technological visions on hydrogen storage technologies have been studied by social scientists predominantly with a focus either on the political discursive process or on public perceptions and factors leading to public acceptance, leading to a call for a new social science agenda for hydrogen research. Besides thinking about 'acceptance', there is a need to think about 'ethical acceptability' as well. This presentation aims to tackle this research gap by thinking about ethical acceptability of energy projects from an energy justice perspective. I will outline several possible ethical questions that can and should be posed when thinking about hydrogen storage technologies, starting from energy justice frameworks. First, it provides a synthesis of existing frameworks and starting points of energy justice to function as a tool to detect ethical questions in the field. Second, this synthesis will be applied to the specific case of hydrogen storage, resulting in several justice-related ethical questions that deserve more attention in the literature.

VARGHESE, Robin Luke

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OF UTTERANCES AND ARTEFACTS: LESSONS FROM THE SEARLE-DERRIDA DEBATE

The Searle-Derrida debate (Derrida 1977, Searle 1977) about 'intentions' and 'speech acts' though often considered as an academically insipid episode has rewarding aspects as well. The stalking horse in the debate is J. L Austin's (1962) views on illocutionary and perlocutionary forces of linguistic utterances. Searle's views on failures of linguistic utterances counteract Derrida's charitable description of the roles of hidden and unconscious factors in utterances. Banking on the Searlean idea that sentences carry a rigid speaker's intention assigned by the speaker, we analogize and form similarity relations between 'speaker uttering a sentence' and 'designer creating an artifact.' The utterance gains an intention, the speaker's assigned meaning, yet as Derrida suggests possesses the freedom to deviate and fail, and in its failure acquires new forms of meaning. Postphenomenologist thinker Don Ihde (1990) expounds the case of multistable relations to argue that technological artifacts form malleable relations in their user environments. The designer, similar to Derrida's image of a speaker in the context of a linguistic utterance, can only assign a function, yet the environment and the users determine its subsequent functions. In Ihde's view, there exists a restraint yet autonomy in the technological artefact that freely determines its functions in a context of its application. Ihde envisions the different kinds of user-technology relations such as embodiment, hermeneutic, alterity and background relations which fluctuate within different contexts. Peter-Paul Verbeek (2008) further extends the notion of multistable relations to accommodate notions such as fusion, immersion and augmentation, which limit the subject-object distance in human-technology relations. Similar to Ihde, Verbeek claims that technologies have intentions (2005) in addition to the mediated intentionality found in the space of user, artifact and the environment. In this paper, we hope to create a meaningful setting to put linguistic utterances and technologies side by side. Taking cues from Maoti (2014) and Alfano (1991), we elucidate the notion of 'intention' as it appears in the context of speech act theories and within the Searle-Derrida's debate. We assess the conditions under which utterances deviate from speaker's intentions. Following Derrida's views, it is argued that the designer's mark on the artefact seems to unfasten and fluctuate as there is always a case for 'absence', because the designer is never able to perfectly assigns a function to the artefact. Similar to the linguistic context where 'ideal communication' rarely occurs, technologies lack 'ideal function'. We conclude that, parallel to the possibility of an altered meaning of linguistic utterances when they are distanced from the speaker, absent features in the artefacts thrive when artefacts are distanced from their designers.

Key Words: Mutistable Relations, Technological intention, Philosophy of Technology and Philosophy of Language

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BEYOND THE TECH-FIX: TOWARDS A BIOMIMETIC CONCEPTION OF TECHNOLOGY IN THE BIO-BASED ECONOMY

In this paper we propose the concept of a biomimetic Bio-Based Economy (BBE). Looking at the current shape of Europe's BBE, we observe a dominant focus on technological innovation as the principal solution to climatic instability. We develop a critical attitude towards such 'Type II' (Knowledge/Science and Technology-based) bioeconomies, listing several problems that occur when technology is – implicitly or explicitly – considered as a potential panacea for the current ecological crisis. We take a critical stance against the common conception of technology as a collective of tools available for our use and argue technology is, rather, an enigmatic pseudo-autonomous force that is inseparable from the social and economic ambitions of involved human actors. To do so, we draw upon the philosophy of Bernard Stiegler. We demonstrate some problematics caused by the current conception of technology by looking at a prominent technological artifact in the BBE, the biorefinery. We argue a fundamental revision of the understanding of technology – from exploiting nature to exploring nature – is necessary for the development of an effective model of a new, genuinely biobased (or biomimetic), economy.

The paper is a work in progress. It builds upon two previous articles, in which we have said the BBE is currently a Human-Based Economy or an Economy-Based Economy. In this article, the aim is to expose the BBE as a Technology-Based Economy. A further aim of our research will be to create a framework for Value Sensitive Design in an article following the current one. We shall be looking to both receive feedback on the outset of the current paper, in order to improve upon the framework and narrow it down, and on our interdisciplinary, quasi-empirical approach regarding the case of biorefineries.

VERBEEK, Peter-Paul

University of Twente

WHAT THINGS DO TO THE PHILOSOPHY OF TECHNOLOGY?

How far has the “thingly turn” in the philosophy of technology brought us, ever since it was proposed in the early 2000s? The proposal for this turn was a reaction to the “transcendentalist” approach of the classical positions in the field that tended to focus on the conditions of technology rather than on the technological artifacts and systems themselves. “Thinking from things” proved to be a fruitful alternative: rather than opposing technological objects and human subjects, technologies were approached as elements of the relations between subject and object, humans and world. The key outcome of this approach was a “material hermeneutics”: technological artifacts became an intrinsic part of interpretation and meaningfulness. But gradually also the limitations of the thingly turn became more visible. First of all, the focus on materiality and technological mediation tended to overlook the human appropriation that goes hand in hand with it: in order to play their mediating roles, technologies need to be appropriated in specific ways by the human beings who use them, and meaning comes about in this complex interplay of mediation and appropriation. Second, in our digital age, technological mediation does not only take place via “things”: technologies also form “environments” or even “artificial agents”, turning the medium into a “milieu” or even a “morph”. This paper will investigate the implications of this need to move beyond “things” and to add appropriation to mediation. To do this, I will analyze how new technologies bring new human-technology relations and therefore urge us to expand the postphenomenological approach to include new forms of mediation, appropriation, and mediated intentionality, with triangular, lemniscatic, and chiasmic structures.

VERDICCHIO, Mario

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COMPUTERS AND FREEDOM IN ART

It is a common opinion that computers have radically changed the way art is made and distributed, allowing artists to step outside the conventional context of galleries and museums. Artworks made with computers are often put in contrast with their traditional counterparts, such as painting and sculptures, because of their digital nature, which leads to parameterisation, dematerialisation, ease of reproduction, and speed of distribution over digital networks. This work argues that the apparent freedom granted by these facets of computer art is not a pure gain, but it comes instead with a high cost in terms of freedom. The new constraints are given not only by a reliance on highly sophisticated technological tools like computers and data networks, but also by social, political and economical agreements that the instruments of computer art need in order to be built and function properly. By adopting computers in our artistic endeavours, artists must acknowledge that, together with the undeniable performance enhancements, they usher in new and not fully understood constraints. If mathematical constraints are intrinsic to computing, protocol conventions and corporate business strategies governing computing technology production and deployment are not. Under this light, to claim that computer art breaks the mould of convention is at best naïve: it is more correct to say that it substitutes the context of galleries and museums with the one of special interest groups and IT corporations. Whether this is a step forward for art, especially political art, is a critical question that needs to be addressed.

VERMAAS, Pieter

TU Delft

REVISITING TECHNICAL ARTEFACTS

The Dual Nature of Technical Artefacts programme was aimed at making three steps simultaneously. First it wanted to give a general description of technical artefacts using physical and intentional concepts as advances in regular sciences. Second it wanted to establish an internal philosophy of technology that looks at the technical structure and design origins of technical artefacts. Third it wanted to immediately focus on the technical artefacts of our current time. The motivation was clear: for us people living in the 21st century, technical artefacts are not sticks and stones, but cars, television sets, etc.; they are engineered, and they are presenting a nice conceptual philosophical challenge: they are described in physical and intentional terms – their dual nature – and those descriptions complement each other. In my contribution I will revisit this programme arguing that its central assumption that technical artefacts are to be described as entities with technical functions was its strongest and also weakest element: it gave the means to develop new accounts of function, to analyze the engineering design process, and to relate technical artefacts to natural objects, biological entities and social entities; it however missed that the concept of technical function has in contemporary technology a rather limited and pragmatic status.

VON SCHOMBERG, Lucien

Lecturer in Creativity & Innovation

IT TAKES TWO TO TANGO: TOWARDS A POLITICAL CONCEPT OF INNOVATION

To counter a techno-economic conceptualization of innovation, the discourse on Responsible Innovation (RI) calls for the democratization of innovation processes. Even so, questions about the politics in and of innovation are often left unaccounted for. To this end, this paper poses the following research question: What does a political concept of innovation consist of and how does it contribute to the RI discourse?

We consult the work of Hannah Arendt, one of the most influential political philosophers of the twentieth century. In The Human Condition she refines the division between the public and private sphere through articulating the vita activa, a tripartite distinction between the activities of labor, work, and action. Our hypothesis is that while a techno-economic concept of innovation is oriented around the mass consumption and production of respectively labor and work, we can find inspiration for a political concept of innovation in the initiative power of action. We distinguish between weak RI, which fights the demands of labor and seeks to govern a techno-economic concept of innovation; and strong RI, which is driven by action and may substantiate a political concept of innovation. The former denotes an application of ethical dimensions to the techno-economic concept of innovation. In contrast, we conceptualize strong RI as a transformative view of the concept of innovation itself; it conveys a fundamentally political concept of innovation that exceeds techno-economic ideologies and practices.

VOORDIJK, Hans

University of Twente

Co-authors: Léon olde SCHOLTENHUIS, Ramon TER HUURNE

MOBILE AUGMENTED REALITY AND TECHNOLOGICAL MEDIATION IN CONSTRUCTION ENGINEERING

Over the past few decades, Mobile Augmented Reality (MAR) has come to play a significant role in construction engineering practice. MAR is any system that 'augments', or overlays, the real world with digital information that seems to co-exist with the real world (Azuma 1997). MAR adds digital elements or objects to the users' surroundings (Liberati 2018). These digital elements and objects are superimposed on the everyday world that serves as the background.

MAR relies solely on data uploaded into the system, which makes its visualization features only as 'good' as the information they are based upon. MAR may invoke a 'false sense of security' in people if they do not have a full understanding of the technological working principles, and consequently misinterpret the technique. Therefore, with the growing influence of MAR in construction engineering practice, analyzing its impact on users' perceptions becomes increasingly important. We adopt Ihde's concept of technological mediation - and his typology describing different forms of how technologies mediate one's perception of the world - to assess this impact (Ihde 1990, Verbeek 2005). To this end, we have reviewed two empirical studies of MAR applications used in construction engineering practice.

It is concluded that MAR, depending on use practices or context of use, establishes a variety of mediation relations between the project environment site and those who experience it. 'Informational' MAR adhere to the relation of augmentation (Rosenberger and Verbeek 2015) and include both embodiment and hermeneutic relations as one perceives the construction site through MAR but also interprets the digital representation of the construction site revealed by MAR. In contrast, the 'non-informational' or 'instructional' relation of engagement includes both an embodiment relation with the MAR device itself and an alterity relation with its screen that offers them virtual instructions.

VORTEL, Martina

TU Berlin

ALGORITHMIC PREDICTION OF MENTAL HEALTH: HYPE VS. EVIDENCE

Digital tracking of moods and mental dramas is a major growth area in computer science, as tech startups, predominantly based in Silicon Valley and backed by millions in venture capital funding, push to establish the scalability and durability of the Covid-19 transformation. Emblematic of Silicon Valley-based technodeterminist ideology, "AI" is marketed as the technological solution to the mental health crisis, justified by the inherent social goodness of innovation and its promise to disrupt the stale field of psychiatry. The latest evolution of algorithmic psychometrics, coined "digital phenotyping", is hyped by industry and scientific players alike who inflate its technological feasibility in the interest of capital. Recently, technology commentators have also begun to speak of "criti-hype", whereby hype-filled academic critiques that speculate on the ethical risks and social implications of "new and emerging technology" similarly overstate the technical capabilities of the technology. In this paper, I ask the question: is the academic ethics discourse about digital phenotyping contributing to the inflation of credibility around the technical feasibility of the technology? I study the case of Mindstrong, a leading digital phenotyping developer, and attempt the non-trivial task of delineating the hype versus evidence surrounding its algorithmic model of mental health prediction. First, I present the technodeterminist ideology behind Mindstrong's model, grounded in familiar claims of 'innovation', 'objectivity', 'personalization', and 'prediction'. Second, I examine the current scientific research on Mindstrong's model and suggest the model lacks scientific validity in respect to the above claims. Third, I assess the ethics literature about Mindstrong and argue that ethical risks are explored in a manner that inflates the technical feasibility of the technology. Ultimately, the hype surrounding digital phenotyping serves to deter more critical academic engagement that challenges the technodeterminist assumption that algorithmic psychometrics is the solution to mental suffering.

WAELEN, Rosalie

PhD Candidate

ASSESSING THE UTOPIC AND DYSTOPIC EXPECTATIONS OF FACIAL RECOGNITION TECHNOLOGY

Facial recognition is an emerging technology that spurs the imagination like no other. Developers of the technology, on the one hand, promise that it will improve security, healthcare, marketing, shopping experiences, and more. Popular science fiction movies and novels, on the other hand, sketch a dystopic future in which facial recognition enables totalitarian regimes. Both parties have the power to shape the expectations of average citizens regarding this technology. However, they create very different expectations. The question, then, is whether one should be excited or worried about the growing presence of facial recognition in society.

In this paper I assess both types of expectations about facial recognition. I do so by analyzing promises of technology developers, expectations raised on popular media, and several science fictions movies featuring facial recognition technology. Following Lucivero (2011), I first address the feasibility of the expectations of the technology's future capabilities. I here point to existing criticism regarding the expectation that emotions, character, or even sexual preferences could be read from one's face. Second I discuss the usability of expected facial recognition applications. I argue that most expected applications do not depend on users active involvement. Usability would therefore not have a large impact on the plausibility of expectations of facial recognition. However, the lacking power to consent to or influence the technology does lay bare an important ethical concern. Third and finally I discuss the desirability of the various expectations regarding facial recognition. This is, of course, where expectations of technology developers and sci-fi authors differ most. I therefore compare the different values inherent in their expectations. An assessment of the plausibility and inherent values of expectations enables ethicists to anticipate potential ethical implications more accurately and critically.

WALES, Jordan

Hillsdale College

THE IMAGE AND THE IDOL: A THEOLOGICAL REFLECTION ON AI BIAS

Contemporary artificial intelligence and machine learning (ML) techniques, despite astounding successes, also manifest notorious biases due to the data on which they are trained, the architecture of the ML systems, the (human) interpretation of the results, or combinations of these factors. Synthesizing contemporary philosophy of machine learning with early Christian writings on the meaning of created things, and the nature of human interpretation and bias, I argue that ML biases are a special case of a general phenomenon: discrete human action requires that reality be reduced to a schema oriented to that action.

Augustinian theology can point the way out of this. First, Augustinian ontology can make sense of how neural networks and other statistical ML techniques outpace the discursive logicism of "Good Old-Fashioned" symbolic AI. Second, Augustinian epistemology—involving affect and will in the apprehension of meaning—well-characterizes the observer-dependent (and bias-susceptible) meaning of ML systems. Third, Augustinian accounts of false knowledge are a suitable analog for ML bias, illuminating how the use of biased systems affects human individuals and society, and how the ML system itself becomes a sort of "idol" in the process. Fourth, answering the ontological and epistemic implications of contemporary ML, Augustinian theology points toward a spirituality of ML biases, and how—striving to transcend these biases—we might rightly approach real-world action and the ML systems to which we look so hopefully for guidance.

WANG, Hao

University of Amsterdam

ALGORITHMIC COLONIZATION OF LOVE: WHAT IS WRONG WITH LETTING AI CHOOSE YOUR PARTNER?

Love is often seen as the most intimate aspect of our lives, but it is increasingly engineered by a few programmers with Artificial Intelligence (AI). Nowadays numerous dating platforms (such as Tinder, OkCupid and Bumble) are deploying smart algorithms to identify a greater number of potential matches for a user. These AI-enabled matchmaking systems, driven by a rich trove of data, can not only predict what a user might prefer but also decide how people choose their partners. This paper draws from Habermas's "colonization of lifeworld" thesis to critically explore the insidious influence of delegating romantic decision-making to an algorithm. For Habermas, the core of the human being's moral and political capacity is its ability to enter into a communicative discourse among equals. But I argue that within surveillance capitalism generally, there is an imbalance of power between users and platforms within the online dating scenario. This unequal power structure would collapse the communicative discourse between the equals which is prerequisite for choosing freely. As a result, algorithm-driven dating platforms may not only erode the true meaning of love but even undermine the romantic existence of human beings at its fundamental level. This article goes beyond to argue whether algorithmic love is morally good or morally bad, but rather how such algorithm-steered romance damages the moral existence of human being: It may construct a being who is unable to freely choose to love or not to love.

WEI, Lu

Zhejiang University

Co-authors: Enrong PAN, Xiaogang JIN

AN ETHICALLY TRUSTWORTHY MODEL FOR AUTONOMOUS DRIVING: A PATH BASED ON MASLOW'S THEORY OF CONSUMER NEEDS

The issue of trustworthiness is one of the major ethical challenges in the commercial application of autonomous driving. Research on the trustworthiness of autonomous driving has generally shown a binary frame of ethical-technical, but ethical and technological experts have different understandings of what constitutes trustworthiness in autonomous driving, and have not yet to provide sufficient ethical support for the application and industrial development of autonomous driving technologies. Based on the principles of the Empirical Turn and Axiological Turns in the philosophy of technology, this study will reflect the ethical trustworthy of autonomous driving based on sufficient and reliable value description of autonomous driving. Firstly, based on the concept of Engineering developed by Peter Kroes et al., We take the engineering of autonomous driving as a socio-technical system, and therefore the trustworthiness of autonomous driving is both technically and ethically trustworthy. Secondly, as enterprises are the main driving force behind the development of autonomous driving and AI, we believe that ethical trustworthiness includes business ethics, and we have developed an ethical-business-technical approach to the trustworthiness of autonomous driving based on the binary frame of ethical-technical. Finally, relying on Maslow's Hierarchy of Needs and its application to the consumer market, we develop a model of "trustworthy research on autonomous driving", which aims to provide a new model of understanding of the "trustworthiness" of autonomous driving, and to provide a way to embedding value into autonomous driving technology (algorithms).

WEISS, Dennis

York College of Pennsylvania

FAILURES OF THE POSTHUMAN TECHNOLOGICAL IMAGINATION

In this presentation I argue that there is a posthuman technological imagination that fails to accomplish what it sets out to do and ought itself to be reimagined employing Adrienne Rich's radical feminist quantum leap of imagination.

Critical posthumanism seeks to reimagine the human form through an appropriation of that which was once thought alien to the human: artifacts, tools, technologies. It aims, as Katherine Hayles observes, to evoke "the exhilarating prospect of getting out of some of the old boxes and opening up new ways of thinking about what being human means" (285).

The posthuman technological imagination begins with the observation that new technologies are rewriting our understanding of what it means to be human and forcing us to rethink the human. But in its current form it is not up to the task of getting us out of old boxes and opening up new ways of thinking. The posthuman technological imagination is still overly indebted to narrow and constraining definitions of both the humans impacted by technologies and the materials doing the impacting. It seldom looks beyond the horizon of Cartesian Man for alternative conceptions of the human being and is overly indebted to the emergence of converging technologies as the singular force that gives birth to the posthuman.

This presentation looks to Rich's call for a quantum leap of imagination by reconfiguring the posthuman technological imagination, gendering it more fully and moving beyond engineering approaches in philosophy of technology by situating technology more fully in culture. Rich's account of technology's impact on mothering and her call for a quantum leap challenge the key terms of the posthuman technological imagination and point in the direction of a reformed technological imagination that begins from the standpoint of those practices that call forth and hold us in our humanity.

WEISSMAN, Jeremy

Washington and Lee University

THE SMART GLASS DYSTOPIA CAN BE RESISTED

Silicon Valley is at the beginning of a major new push for smart glasses with Facebook set to release their first device this year and Apple and Samsung widely rumored to have their own products in the works as well. Widespread uptake of facial recognition augmented reality glasses could deliver a mortal blow to privacy and public anonymity altogether, ushering in a dystopia of "little brother," a crowdsourced panopticon generated by the global public of ordinary smart glass users. With wearable cameras out on people's faces, ready to shoot at the blink of an eye, one will become much less certain when one is being recorded and much more likely to be broadcast online at any moment. Through facial recognition technology, these recordings may also become automatically tagged with an individual's name with any moment caught on camera thereby becoming attached to an individual's online presence. Furthermore, through augmented reality, one's digital self may effectively merge with one's in-real-life (IRL) self as online information could be instantly recalled by looking at an individual while wearing a device with facial recognition capabilities. The "digital scarlet letter" of a ruined online reputation, or even just an unpopular one, would then in effect be worn as a scarlet letter electronically imposed upon the IRL self. In such an environment one may be on guard at all times, carefully monitoring oneself to assure conformity with prevailing norms since at any moment one's collectively scored words or actions may be recorded and broadcast, becoming permanently attached to oneself wherever one goes. A world of ubiquitous smart glasses is seen by Silicon Valley as inevitable. But none of this is inevitable and we should not remain complacent. Rather, through a combination of technological, legal, and social measures such a chilling techno-social environment can be effectively resisted.

WERKHEISER, Ian

University of Texas Rio Grande Valley

THINKING WITH THE (DIGITAL) WORLD: JUSTICE ISSUES IN EXTENDED COGNITION AND MIXED REALITY TECHNOLOGY

"Mixed Reality" or "MR" technologies, in which a person's environment is augmented with virtual elements, are plausibly on the cusp of widespread adoption in technologically developed countries yet remain underexamined by philosophers. One underexamined issue is their effect on the ways we offload cognitive burdens onto the environment. This is something we all do, such as when certain aspects of the environment jog our memory, or the manipulation of tokens in the environment helps us complete difficult cognitive tasks, or when we find some environments conducive to particular kinds of thinking, and so on. The advent of MR technologies may change this extended cognition in radical ways. Aides-mémoire, tokens, and so on can be re-deployed anywhere, overlaid on top of the existing landscape. Aspects of the environment that were previously immutable can now be virtually altered and recruited for cognition, making them more vivid and evocative or more directly representational of the things they stand for as tokens. All this can also be shared with others for distributed cognition and communication.

These changes to our extended cognition, I argue, have important implications for both Environmental Justice and Epistemic Justice. These include problems of access and distributive justice, but also less obvious problems like turning our cognitive tools and reasoning into commodities that can be data-mined by companies, and a limiting of the ways the environment can be recruited into our thought as artificial tools designed by others overwhelm ones that physically present themselves to us.

I discuss these implications in this presentation, and the extent to which these issues could be mitigated by design decisions or are inherent to MR technology.

WELLNER, Galit

Tel Aviv University

MATERIAL HERMENEUTICS BY DON IHDE

The reader of Material Hermeneutics can find many old friends in the book: Otzi the prehistoric frozen body that tells us what he ate, which diseases he suffered from and when he died; the visual display of a digital synthesizer; the lunar calendar on a bone; to name a few. Yet, the book is much more than a collection of material hermeneutic examples, some developed throughout Ihde's rich career, and some especially for this book. The argument that was scattered among articles, book chapters and conference papers, materializes.

Ihde draws a line from early-modern science that becomes optical through telescopes and microscopes, through late-modern science that visualizes invisible radiation, to post-modern science that envisions black holes. I'm interested in the last milestone as a meeting point of science and everyday gadgets such as cellphones. They converge at big data and AI, when these technologies store a huge amount of data and identify patterns in it. In astronomy the patterns can represent complex structures like that of oumuamua, the mysterious interstellar object. In the consumer worlds, the patterns assist corporates to recommend which movies to watch, flights to order, books to buy. In science, Anderson (2008) criticized these technologies for ruining the modern scientific hypothesis. In everyday apps, Zuboff (2019) criticized the attempts to shape users' will. The challenge of postphenomenology is to deploy material hermeneutics to correctly describe the post-digital world and recommend how to live and flourish in it.

WELLNER, Galit

Tel Aviv University

A POSTPHENOMENOLOGY OF ELECTRIC, SELF-DRIVING, AND SHARED VEHICLES

A history of the automobile may start with a horse-drawn carriage that obeys the rules of Newtonian physics. This is the foundation of the dream of a vehicle that will carry passengers easily, quietly, and effortlessly. The next stage starts in the late nineteenth century with the invention of the horseless carriage, that is—a car powered by fuel. This car is still subject to Newton's theory, but also to the more complex theory of thermodynamics. Today's autonomous vehicle (AV) is the contemporary manifestation of this dream.

To understand the evolution of AVs, it is important to understand the diverse technologies that comprise it. My panel presentation will cover three technological families: electric engines, self-driving mechanisms and shared rides algorithms.

Orienting ourselves towards the responsible development and implementation of AVs, policies should not just be focused on the technologies themselves, but rather should take into account the interactions with human users and nonusers. In my presentation I attempt to understand the entanglements among humans, their technologies, and their surroundings, as well as upcoming technological changes and regulatory regimes (e.g., sensors that detect the passenger's eyes, or regulation expanding the principles of equality to the shared vehicle). To do so, I employ the postphenomenological methodology of I-technology- world, especially its recent developments concerning intense technological intentionality. Additionally, I show how the "world" component of the postphenomenological formula should gain an increased visibility, especially in light of the environmental crisis we are facing.

WELLNER, Galit

Tel Aviv University

HUMAN IMAGINATION AND AI: TOWARDS A LAYERED MODEL OF IMAGINATION

Every now and then, a news article laments the disappearance of human imagination due to ever-improving AI algorithms. The creations discussed can be literature written by GPT-3 or portraits drawn by GAN algorithms. The articles tend to use the concepts imagination and creativity interchangeably, and both are attributed to AI, leaving the human user poorer and weaker. Is it time to update the definition of imagination?

What is called AI's imagination is built on existing works of human imagination, and treats those works as data from which surprising combinations can be calculated. AI's ability to produce new combinations on a mass scale is unmatched by any human agent. Yet, this technology cannot produce completely new works or assign meaning to the new combinations.

In this paper, I present a multi-layer approach to imagination, according to which imagination resides in both the human and the AI actors. Some layers are best operated by the technology, such as generating numerous variations, whereas other layers, such as assigning meaning, are best operated by humans. When it comes to well-defined tasks like designing a chair, most of the creative work can be done by AI algorithms. But when facing climate... *(cut off due to length)

WERRETT, Simon

University College London

MATERIALIZING THE PHILOSOPHY OF TECHNOLOGY

The philosophy of technology has always been interested in the material whether it be history of scientific instruments, the history of chemistry, engineering, or material science or the history of understanding matter itself. Despite this the philosophy of science and technology has tended to remain resolutely immaterial through its focus on intellectual histories and theories divorced from their context. A recent more sociological history of science has given more emphasis to objects and spaces but a great deal remains to be done as long as the social (which is still largely immaterial) remains a focus. In his work on "Thrifty Science", S. Werrett argues that history can reveal radically different and illuminating approaches to materials from the past which not only generated a new scientific culture in the period associated with the 'Scientific Revolution' but also offer lessons for creating a more sustainable culture today. Other projects he is working on with Marie Thébaud-Sorger and Bernadette Bensaude-Vincent and Lissa Roberts indicate that we have scarcely begun to appreciate the role of the properties and temporalities of materials and their agency in governance, morality and economy. There is also much work to be done, S. Werrett argues, to rethink the history of science in terms of 'sociomateriality' in which the social and material are always combined. Were there, for example, sociomaterial equivalents to scholasticism, or professionalization, or modesty in the history of science? This would be a history of science written through the changing contours, upheavals, and evolutions of its sociomaterial culture, understood through its multidimensional properties and always interacting with broader sociomaterial contexts.

WIGGERSHAUS, Nick

University of Lille

COMPUTER PROGRAMS & MUSIC – MUCH IN COMMON?

In this talk I aim to dissolve one of the arguable main obstacles when it comes to the characterization of computer programs as fictional artifacts. When computer programs are regarded as mere texts or a collection of logical statements, fictional views of (abstract) artifacts akin to novels, poems or scientific theories are easily applied. However, I argue that applying this fictional view is not as straight forward as it seems: Unlike most of these artifacts, computer programs appear to be causally efficacious, i.e., they are connected to the causal chain of the world and their execution has real world effects. At first, this stands at odds with typical fictional accounts; for instance, while we can surely pretend as if Sherlock Holmes does this and that, computer programs do really guide the behavior of machines. I try to resolve this tension on the basis of works of music and music boxes, by comparing the pair "program – computer" to the "music – musical automata/music boxes". Whereas computer programs give rise to a series of computations, scores are special kinds of instructions to a series of sounds. In both cases, humans can program computers/musical automata according to these instructions. This way, computer programs, like works of music, can be seen as fictional artifacts. The problem of how these fictional artifacts are integrated in the causal chain is overcome by humans setting up programmable automata.

WIGGERSHAUS, Nick

University of Lille

TECHNOLOGY AS FICTION? THE CURIOUS CASE OF COMPUTER PROGRAMS (PANEL)

This panel explores the possibility to regard technology as fiction, focusing on the case of computer programs. Despite its name, it is debatable whether computer science counts as a "real science". Consequently, computer programs – one of computer science's main entities– appear to live in a metaphysical twilight zone. They can be held to be formal-mathematical objects, concrete objects or set-ups (e.g., hardwired circuits), computational artifacts (a special case of technical artifacts), abstract artifacts, etc. One prominent area in which this ambiguity constantly resurfaces and goes beyond mere philosophically inclined discussions, is in the legal debate of software Diaz (2019); should programs be subject to patent law or rather copyright claims?

Overall, this raises a curious philosophical riddle about what kind of entities computer programs are. If they are artifacts, what kind of artifacts are they? Recent publications apply general frameworks stemming from philosophy of technology & engineering to computer programs Turner (2018), Anderson (2019). One potential problem with these views is that they appear to be originally developed for material artifacts like hammers or engines, so possibly presupposing that computer programs are also material artefacts, remaining silent about the abstract/immaterial views.

In this panel in contrast, we discuss notions of artifacts that have seen less attention in connection with computer programs, the so-called fictional views of artifacts as employed in the philosophy of art (cf. Irmak (2013) for exception though). Fictional approaches to artifacts are, for instance, applied to works of literature, fictional characters or symphonies, where these artifacts are concluded to be abstract objects or the result of games of make-believe Walton (1990), Thomasson (1999). In addition, we also find these frameworks more and more frequently applied in the philosophy of science, in debates about the nature of models and theories Frigg (2010), French (2020). To what extent does it make sense to apply one of the "fictional views of artifacts" to computer programs? Do computer programs exemplify the case in which technology counts as fiction?

In the following, Selmer Bringsjord draws the analogy according to which programmers work like sculptors. Subsequently, Máté Szabó provides a historically inclined talk, presenting Kalmár's "fictional computers". On the basis of the example of musical automata, Nick Wiggershaus compares computer programs with musical compositions. The talk by Jochen Runde (&Philipp Faulkner) on the other hand, complements the topic by illuminating the social identity of material or nonmaterial artifacts of a larger category, called "digital objects".

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WILL, Don

Xi 'an University of Architecture and Technology

ONTOLOGY OF ARTEFACTS

The traditional ontology analysis of technical artefacts has missed the critical dimension of philosophy. Based on the fact that human being is the creator of artefacts, epistemology can be ontologicalized,. The establishment of ontology is not for knowing, but for criticism, and provide a new perspective for the practice of Engineering creation. In this paper, we propose artefacts should be investigated in the context of " Being-in-the-world" of "Dasein" with the "family resemblance" capproach. A group of concepts of Ontology are construed: technicality, sociality, embodiment and historicity. Technicality is the characteristic of contemporary artefacts; sociality explains the demand and social influence of artefacts creation; embodiment emphasizes the quality of artefacts application and aesthetics; historicity gives the overall orientation of artefacts. This paper aims to face the needs of engineering, highlight the ideological problems with the practice of artefact creation, lay the foundation for ethical criticism, and construct a good engineering culture.

WILLIAMS, Rua

Purdue University

ARCHIVAL WASTELANDS: AN ENVIRONMENTAL AND EPISTEMIC TOXICOLOGY OF DATA COLLECTION

Machine Learning approaches to Algorithmic Decision-Making support systems have come under scrutiny for the disproportionately dangerous consequences they have for marginalized communities. ML bias against Black and Indigenous people has been recognized in all domains of public and private service, including criminal justice (Koepke, 2016), healthcare (Ledford, 2019), and finance (Bartlett et al., 2019). These biases have direct material and fatal consequences. Many ML researchers have endeavored to develop methodological 'fixes' to the data collection, classification, and connection processes that influence these biases. However, STS scholars insist the concern begins not with the mundanity of data collection and classification but in the very nature of the questions ML systems are being used to answer (Bennet & Keyes, 2020; Keyes et al., 2019). In this paper, I turn to the physical infrastructure of ML systems to explore the entanglement between the epistemic and environmental toxicity of data archival and cloud service delivery. Drawing on Ingrid Burrington's investigations of the Internet's infrastructure (2015), Rob Nixon's concept of 'slow violence' and environmental racism (2011), and David Zeitlyn's explorations of archives as projects of colonialism (2012), I interrogate the compulsion for data collection itself as an expression of neocolonial entitlement - a practice which produces toxicity in both the ecological and epistemic domains. Finally, I invite readers to struggle with me over the complex implications of 'forgetting' in the context of archival practices. Drawing from Sunaura Taylor's 'Disabled Ecologies' (2019), I imagine forgetfulness as a criptechnoscientific (Hamraie & Fritsch, 2019) intervention on the archive while reckoning with the possible liberatory yet alienating consequences of being forgotten.

WILTSE, Heather

Umeå Institute of Design, Umeå University

Co-author: Johan REDSTRÖM

PHILOSOPHICAL IMAGINARIES FOR CONNECTED SOCIOTECHNICAL REALITIES

It is now well-recognized that technologies do not stand on their own and only serve rational, instrumental purposes, but are rather part of complex sociotechnical systems that reflect diverse and complex values, purposes, and power structures. They can also be seen as having their own existence independent of humans, drawing on flat ontology and materialist perspectives. Yet in common sense reasoning around technology, not to mention in its (experience) design, there persists a basic technological imaginary based on technologies as passive tools that humans pick up and put to use in serving their more or less heroic purposes. Now, however, even everyday experience seems to challenge this perspective on technology as strictly submissive tools as we find that what music to listen to next, books to read, movies to watch or products to purchase seem to have been all but already selected for us by the apps and services we use. Indeed, 'becoming part of' is probably a more accurate description than 'using'.

In order to explore the implications of these changes while also highlighting persistent elements of our collective technological imaginary, we here examine a few classic examples within philosophy of technology through this lens. Playfully reimagining examples such as the hammer, the cane or the clock, what happens if we instead start from the assumption that things possess agencies and intentionalities as important or influential as our own? What if we consider ourselves extensions of the tools we use, rather than the other way around? Here, we aim to sketch the contours of a new kind of philosophical imaginary that might be more relevant for our current sociotechnical reality.

WITTINGSLOW, Ryan

University of Groningen

ARTWORKS AND THEIR AFFORDANCES

The question of where and how artistic meaning resides is an ongoing question in philosophical aesthetics. In this paper I will demonstrate how methods drawn from philosophy of technology can be used to speak meaningfully about the 'cognitive functions' of artworks: that is, how artworks mean things.

Philosophers of technology use 'affordances' to capture the ways in which technologies facilitate certain kinds of performances. Swimming goggles afford seeing underwater. Paintbrushes afford the precise application of paint. Rockets afford travelling to the moon. Affordances, in short, provide a means of conceptualising what different technologies do for us.

In this way, affordances give us a way to speak about the cognitive functions of technology, without bogging us down in questions about the semantic contents of those technologies. The cognitive function of a given piece of technology lies not in the knowledge that it instantiates, but rather in what it can teach us via the performances that the technology affords.

Artworks too are a kind of technology, despite a number of claims to the contrary. They are, after all, the products of human intention in the same way that other tools are the products of human intention: they are designed and created for a given purpose. Does this imply that artworks can provide affordances?

I think yes. This is the foundational claim of this paper: that artworks provide affordances, in that they facilitate certain kinds of performances. Moreover, because of the posed relationship between affordances and cognitive functions, these affordances constitute evidence of artworks possessing cognitive functions. This insight offers an unambiguous way to cash out the question of artistic meaning.

WU, Roberto

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THE TECHNOLOGICAL SHAPING OF IMAGINATION

To what extent technology modifies imagination? An adequate answer requires in the first place an elucidation of our relationship with technology. As indicated by studies of Heidegger, Ihde, and Verbeek, among others, technology is not merely something created and controlled by humans, but rather, it leads to the emergence of an unprecedent form of relationship with beings. It develops itself as penetrating every instance of the world, from genetically modified food to music composition. Every interaction with beings is, from the outset, technologically embedded, which means that our imagination works within a technological framework and mediated by technological artefacts. A double outcome regarding technology and imagination results from this scenario. On the one hand, the predominance of technology leads to an increase of practicality, as technological artefacts require less competence and specialized knowledge in order to operate them. Therefore, technology sets the boundaries where imagination operates and, consequently, tends to restrain the latter to its framework. On the other hand, technology creates a new set of beings that produces different forms of relationship with one's body, as they are not merely added to it, but they require a body modification in order to being used. In this sense, they lead to entirely different uses of imagination from those concerning natural beings or pre-technoscience tools. Examples of such beings are sounds created by software or images created by a virtual reality simulator, which require distinct forms of attention, posture, body responsiveness and creation. This proposal suggests that technological modifications in imagination result in a different human body, one that is more adapted to cope creatively with technologically advanced beings, but which presents the drawback of being increasingly less capable of imagining non-technological mediated phenomena.

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VIRTUAL CONSTRUCTION OR EXTENSION OF CONSCIOUSNESS?

Interaction technology is the reduction and reconstruction of human beings to the external experience world. This reconstruction breaks the objective value of perception, and the separation of spirit and body, consciousness and perception occurs in the pure environment formed by technology. In this paper, we reflect second personality from the perspective of technology risk epistemology and propose a hypothesis called “benefit latent hypothesis" in order to reflect on the ethical issue that the use of interactive technology is the virtual reconstruction of the subject's experience. We argued that the second personality generated by immersive experience is the manifestation of the extension of consciousness under the guidance of technology, and the risk of interactive technology can be controlled by controlling the stimulus signal of cognitive benefits.

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THE ETHICAL APPROACH OF TECHNOLOGY GOVERNANCE IN THE POST-EPIDEMIC ERA

Today, the world is undergoing profound changes unseen in a century. The COVID-19 epidemic is a huge crisis facing all people, and it is deeply affecting and changing the world. For a long time to come, the epidemic will continue to persist in different regions to varying degrees, and the world will inevitably enter a post-epidemic era. In this era, the continuous development of science and technology will persistently provide strong support for mankind. Meanwhile, the development of science and technology needs governance. The reason is that the development contains uncertainties and risks, which are related to various aspects such as economy, politics and law. Moreover, on top of these specific fields that affect human social life, there is a more general question, that is, does technological development really bring a "good life" to human beings? As Martha Nussbaum pointed out, "a good human life consists in the pursuit and realization of a series of Good that may be in conflict under certain circumstances." Therefore, at the ethical level, technology governance is transformed into the pursuit of "good governance", and how to realize the “good governance” has become an urgent issue of our time. Under these circumstances, this article first explores the characteristics of the "post-epidemic era", to combine with the international theoretical achievements and institutional practice on technology governance, and to construct the ethical framework of “good governance” on science and technology, aiming to explore the possibility of a broader ethical analysis and research approach for technology governance. Specifically, this article will make an effort to enrich the ethical dimension of technology governance, put forward a new perspective of "good governance" on science and technology, to further explore the specific contents such as conflict between "life first" and instrumental rationality, the incoordination between global governance and regional governance, the influence of multiple values on the practical effectiveness of technology governance, and the local approach of “good governance” in China.

YOUNG, Mark Thomas

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How Artifacts Acquire Agency (Winner of the Early Career Paper Award)

It is common to view the technologies that surround us as either tools or agents. This paper examines how this distinction is commonly understood as reflecting a difference between kinds of technology: those which operate by human agency, and those which operate by their own, technological form of agency. The first section of this article identifies this conception of agency in current literature on automation and explores the way in which it has long informed common assumptions concerning the relation between technology and work. The second section adopts a critical approach which aims to show that because the operation of agents depends as much on human agency as tools, the idea that agents can be understood to possess their own technological form of agency is mistaken. Instead, I will propose an alternative conception which understands agents to be distinguished, not by the kind of agency they employ, but rather by the way in which the human agency on which they depend is concealed. After examining reasons why we should consider this concealment to represent a social rather than technological phenomenon, this paper concludes by exploring some implications this view holds for the way in which the ethics of automation is currently approached in the philosophy of technology.

ZEBROWSKI, Robin

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AI ETHICS IS A HOT MESS: COULD EMBODIED AIS BE ETHICAL AGENTS?

Much has been said elsewhere in this book about the ethics of AI applications, considered broadly (see the previous chapter). The current status of AI ethics as a field is controversial. It is also a bit of a hot mess right now, as technological challenges emerge from Silicon Valley and emerging technology groups around the world that need to be dealt with immediately (if not sooner). Tools and products and algorithms and approaches to building things all seem to hit the shelves, followed immediately by a scramble of philosophers pointing out how this or that ethicist of technology or AI has been warning us for years that this was due to happen. And consumers either never hear about these worries or continue to fail to take them seriously, compounding one ethical disaster onto another around privacy, security, or general failures to consider the social implications of our emerging technologies.

In this presentation, it will be argued that the future of ethical AI has something really interesting to offer us, as it promises to tie together the literature in 4e cognitive studies (the 4e's being embodied, embedded, enactive, and extended) with the literature in robotics, and to offer us insight into the nature of ethics itself. A view will be examined and at least somewhat defended that consciousness is immediately and inextricably tied to embodiment, though, so this breaks with most traditional computationalist views and remains highly controversial (even to some of the authors on this panel).

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GLOBAL ENGINEERING ETHICS: WHAT? WHY? HOW? AND WHEN?

Despite the fact that engineering programs, accreditation bodies, and multinational corporations have become increasingly interested in introducing global dimensions into professional engineering practice, there is little work in the existing literature that systematically examines questions fundamental to global engineering ethics, such as what global engineering ethics is, why it should be taught, how it should be taught, and when it should be introduced. This paper describes the what, why, how, and when of global engineering ethics. This form is adopted from a 1996 article written by Charles Harris, Michael Davis, Michael Pritchard, and Michael Rabins, which has influenced the development of engineering ethics for over twenty years. First, we begin by outlining "global engineering ethics" in a broad sense, referring to the recasting of engineering ethics in response to the increasingly cross-cultural, international characteristics of contemporary technology and engineering, describing four fundamental approaches that have been proposed by scholars and implemented in curricula: (1) global ethical codes; (2) functionalist theories; (3) cultural studies; and (4) global ethics and justice. Next, we move on to explain the major motivations for teaching global engineering ethics, highlighting points of convergence and divergence with traditional engineering ethics: Neither educators nor practitioners can necessarily assume a shared nationality among students or between coworkers. Third, we discuss controversies surrounding how global engineering ethics should be taught. One of the most prevalent approaches consists in using case studies with a cross-cultural and/or international dimension, or a form of case-study analysis that takes a "bottom-up" – versus "top-down" – approach. Finally, we identify spots within the engineering curriculum for global engineering ethics – these include standalone courses, integrated modules, micro-insertions, competence-based training scenarios, and extracurricular activities such as study, research, service-learning, and humanitarian engineering programs abroad – and critically examine the strengths and limitations of these approaches. As the world becomes increasingly cross-cultural and international, ongoing training in global ethics will be essential to both students and practicing engineers.

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KONSTANTIN TSIOLKOVSKY: POWER OF IMAGINATION

In this presentation, I outline the life and ideas of Konstantin Tsiolkovsky (1857-1935), a disabled rural physics teacher, who is considered to be a “father of cosmonautics” in Russia. Tsiolkovsky’s cosmic philosophy and technological ideas (rocket models) for space exploration gained momentum in pre-revolutionary Russia. The cohort of his followers and students would eventually form the basis for the space program in the USSR. Tsiolkovsky, a prolific writer, left numerous philosophical works, where technological imaginaries of space colonization fuse with quasi-religious teleologies and his own theory of consciousness. Although far into space, the system Tsiolkovsky built is very anthropocentric and deals with the basic issue of human happiness and the role of technology in it. His work provides an interesting contrast to contemporary dystopian technological scenarios on earth and space.

INDEX OF AUTHORS & CO-AUTHORS

G

H

I

J

K

L

M

N

O

P

R

S

T

U

V

W

X

Y

Z