



THE OXFORD RESEARCH CENTRE IN THE HUMANITIES

Futures Thinking Conference

1-3 October 2019

Wolfson College, Oxford

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Conference Schedule

Day 1

- 8.30-9.30am Registration
9.30-9.45am **Welcome:** Chelsea Haith
9.45-11.15 **Imagining Intelligent Machines**
Stephen Cave, Kanta Dihal, and Olivia Belton
11.15am Tea
11.30am **Keynote:** Marcus du Sautoy: 'The Creativity Code'
Chair: Ilan Price
1-2pm Lunch
2-3.30pm Parallel Sessions
A. Quantified Self as the Measure of All Things
EL Putnam, Noel Fitpatrick, Conor McGarrigle, John Kelleher
B. Digital Justice and the Shape of Societies to Come
Catherine Pope, Tetyana Krupiy, Jagjit Kaur
Chair: Christine Aicardi
3.30-3.45pm Tea
3.45-5.15pm Parallel Sessions
C. The Shifting Nature of Identity in a Digital Society
Leah Henrickson, Charlie Smith, Sabine Thürmel
Chair: Madeleine Chalmers
D. Science Fiction - Writing Another World
Chen Ma, Lucy Nield, Christine Aicardi
Chair: Chelsea Haith
5.15-7.30pm Wine Reception

Day 2

- 8.30-9.30am Registration
9.30-11am **A Future Worth Fighting For**
Dan Holloway, Kate West, Clouds Haberberg
11-11.15am Tea
11.15-1pm Parallel Sessions
E. Publishing Futures and Machine Learning
Laura Dietz, Abbie Smith A, Eric White & John Twycross (AGAST)
Chair: Dan Holloway
F. Making Spaces, Making the Future:
Christian Keller, Bronwin Patrickson, Ray op'tLand

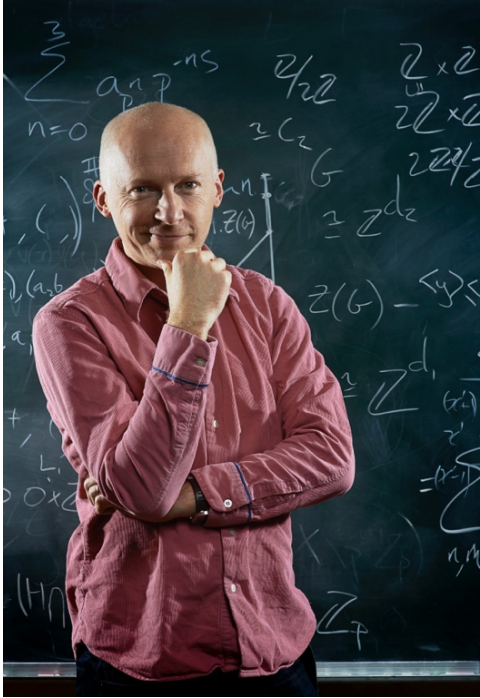
Chair: Tomoko Kitagawa
 1-2pm Lunch
 2-3.15pm **Keynote:** Alex Goody: 'Playing the Future: Thinking Possible Worlds and Possible Selves through *Westworld*'
 Chair and Discussant: Chelsea Haith
 3.15-3.45pm Tea
 3.45-5.15pm **Lit Hits Digital Reading Project**
 Kirsten Shepherd-Barr and Alexandra Paddock
 5.15-7.30 Dinner Break
 7.30 **Stand-Up: AI** comedy, co-hosted with Jericho Comedy

Day 3

8.30-9am Registration
 9-10.30am **Roundtable: Psychology and Futurity**
 Dan Holloway, Franziska Kohlt, Madeleine Chalmers and Ulrik Lyngs
 10.30-10.45 Tea
 10.45-12.15 Parallel Sessions
G. Modalities, music and art
 Tomoko Kitagawa, Robert Laidlow, Giovanni Colavizza & Massimo Franceschet
 Chair: Anne Ploin
H. Urban Spaces and Future Selves
 PM Krafft, Amillin Hussain, Tomas Čiučelis
 Chair: Tetyana Krupiy
 12.15pm **Farewell and Thanks** - Futures Thinking Team



Keynote Speakers



Marcus du Sautoy

Marcus du Sautoy is the Simonyi Professor for the Public Understanding of Science and Professor of Mathematics at the University of Oxford. He is author of six books including his most recent books *The Creativity Code* (Fourth Estate, 2019). He has presented numerous radio and TV series including a four part landmark TV series for the BBC called *The Story of Maths*. He works extensively with a range of arts organisations bringing science alive for the public from The Royal Opera House to the Glastonbury Festival. His play *I is a Strange Loop* (in which he is both actor and author) was part of the Barbican’s Life Rewired season. He received an OBE for services to science in the 2010 New Year’s Honours List and was made a Fellow of the Royal Society in 2016.

Alex Goody

Alex Goody is Professor of Twentieth-Century Literature and Culture at Oxford Brookes University. She is the author and editor of six books, including *Reading Westworld* and *Gender, Modernist Poetry and Leisure Technologies: Machines Amusements*, both published this year. Her current projects include a book on the TV series *Black Mirror* and one on women’s poetry and the non-human animal.



Session Abstracts

Day 1

Panel 1: Imagining Intelligent Machines

Stephen Cave, Kanta Dihal, and Olivia Belton, *University of Cambridge*

Artificial intelligence is set to have an unprecedented global impact – and public perceptions will shape much of it, affecting how the technology is developed, adopted and regulated. But humanity has been imagining intelligent machines since long before we could build them. As artificial intelligence and robotics begin to fulfil their promises, they therefore arrive pre-loaded with meaning, sparking associations – and media attention – disproportionate to their capacities. How we frame future technologies and their risks and benefits can significantly influence their development, regulation and place in public opinion. Balancing AI's potential and its pitfalls therefore requires navigating this web of associations.

Having started in 2017 with a joint interdisciplinary endeavour by the Leverhulme Centre for the Future of Intelligence at the University of Cambridge and the Royal Society, the AI Narratives and Justice programme has therefore been examining how researchers, communicators, policymakers, and publics talk about artificial intelligence, and why this matters. We are committed to investigating how the imaginative history of AI informs the scientific present and future. This panel presents some of our ongoing research, in three presentations of twenty minutes each.

Kanta Dihal - Enslaved Minds: Artificial Intelligence, Slavery, and Revolt

Humankind has long dreamed of a life of ease, but throughout history those who achieved such a life have done so simply by delegating that labour to an exploited underclass. Machines have taken over the worst of the manual labour, and AI is beginning to replace cognitive labour. However, endowing machines with muscle power does not carry with it the ethical considerations involved in endowing machines with mental faculties. Just as human slaves have justly rebelled against their chains, so might intelligent machines be considered justified in attempting to break free of their enslavement to humans. Using Karel Čapek's *R.U.R.* (1921), Ridley Scott's *Blade Runner* (1982), and Jo Walton's *Thessaly* trilogy (2014-2016) as case studies, this paper contextualises the robot uprising in fiction against the long history of slave revolts, to show how these narratives offer us a new way to consider the enslavement and subservience of humans.

Dr Kanta Dihal is the Postdoctoral Research Associate on the AI Narratives project. She is one of the Project Leads on Global AI Narratives and the Project Development Lead on Decolonizing AI.

In her research, she explores how fictional and nonfictional stories shape the development and public understanding of artificial intelligence. Kanta's work intersects the fields of science communication, literature and science, and science fiction. She obtained her DPhil in science communication at the University of Oxford: in her thesis, titled 'The Stories of Quantum Physics,' she investigated the communication of conflicting interpretations of quantum physics to adults and children. She is co-editor of the forthcoming collection AI Narratives: A History of Imaginative Thinking About Intelligent Machines (Oxford University Press, 2020) and is currently working with Dr Stephen Cave on the monograph AI: A Mythology.

Stephen Cave - Why are Robots White?

This paper examines why stock images and popular portrayals of robots and AI often depict these machines as White humanoids (not only in the colour of their materials, but also in their implied ethnicity). This matters: recent research shows that racial biases expressed toward humans are also shown toward racialised robots (e.g., just as people in a video game setting are quicker to shoot Black men than White, so they are quicker to shoot brown 'skinned' robots). Following critical race theorists, we argue that humanness is historically a quality that has been assigned to some groups more than others: criteria like race and gender are used to place people on this scale of humanness in ways that reinforce dominance hierarchies. The Whiteness of these robots is positioning them within these hierarchies in ways that reflect assumptions about their imagined nature and roles: they are White because they are imagined to be intelligent, autonomous, and partaking in middle-class professions such as medicine -- all traits long claimed in the West by White men. These portrayals risk distorting debates about the impact of these technologies, focussing them disproportionately on the interests of a privileged group instead of marginalised communities who are likely to be more affected.

***Dr Stephen Cave** is Executive Director of the Leverhulme Centre for the Future of Intelligence, Senior Research Associate in the Faculty of Philosophy, and Fellow of Hughes Hall, all at the University of Cambridge. Stephen earned a PhD in philosophy from Cambridge, then joined the British Foreign Office, where he served as a policy advisor and diplomat. He has subsequently written and spoken on a wide range of philosophical and scientific subjects, including in the New York Times, The Atlantic, and on television and radio around the world. His research interests currently focus on the nature, portrayal and governance of AI.*

Olivia Belton - Using Futures Methodologies to Understand Public Perceptions of Emergent Technology

Current futures methodologies often focus on expert forecasting (Puglisi 2001, 441). This overlooks the potential that futures-influenced methods have for understanding public perception of emergent technologies.

Fictional and non-fictional media depictions of artificial intelligence tend towards utopian or dystopian extremes – often split along binary dichotomies of interrelated hopes and fears (Cave

and Dihal, 2019, 75). These strong anxieties are, broadly speaking, reflected in the data about public perceptions of emergent technology. For instance, researchers have noticed a significant distrust of fully autonomous flight, with a strong preference stated for human-piloted planes (Mehta et al, 2017, 58). I hypothesise that this is symptomatic of existential concerns about the displacement of the human by machines, as well as more practical concerns of hypothetical safeguards and safety procedures.

Research suggests that using games can generate unexpected results from participants, while also capitalising on ‘humans’ native, everyday foresight capacity’ (Candy 2018, 242). I am currently conducting focus groups where non-expert participants play a modified version of the collaborative storytelling game Microscope. Participants take turns telling a non-linear story with a pre-agreed beginning and ending. Having completed a pilot study, I believe this methodology has enormous potential for helping us understand how non-experts creatively imagine the development of new technology.

In this paper, I will present the results of the pilot study. By using critical discourse analysis, I will show how public perceptions of unmanned aerial vehicles (UAVs) are closely connected to anxieties about technological surveillance. However, the participants were careful to consider both the positives and negatives of new technologies, and their story left the ultimate value of the UAVs open-ended. This may imply that public perceptions of artificial intelligence are more nuanced than has been previously suggested.

Dr Olivia Belton is a postdoctoral research associate at the Leverhulme Centre for the Future of Intelligence at the University of Cambridge. She completed her doctorate on posthuman women in science fiction television at the University of East Anglia. She has a book chapter, co-authored with Dr Kate Devlin, forthcoming in *AI Narratives: A History of Imaginative Thinking about Intelligent Machines* (Oxford University Press, March 2020).

Session A (Panel): Quantified self as the measure of all things: self-surveillance and constructing the Narrative Self

Speakers: EL Putnam, Noel Fitzpatrick, Conor McGarrigle, John Kelleher

Social media and wearable biometric devices has facilitated the ability to produce, create and share narratives of the self, sometimes providing an illusion of ownership of the authorship of one's own stories and the formation of narrative self identity. Such processes have come under scrutiny, particularly in regards to the technological affordances and tools that are involved in such modes of self-production. Indeed, the ethical implications of the formation of narrative self through digital technologies has begun to come to the fore. (Fitzpatrick 2019). Despite the apparent distinctiveness of the production of self-narratives in the era of social media, Nathan Jurgenson (2019) emphasises how such processes are a new phases in socially constituted identity work, though occurring at a pace and expanse unprecedented in human history. Computational technologies, including algorithms, have reformed the production of identity through the development of quantified selves. Timothy Morton (2017) describes algorithms as automating human past through logistical capture, ordering, archiving, and in turn, responding to, predicting and prompting (nudging/persuading) behaviour through an increasingly foreclosed future. Moreover, these seemingly open methods of communication are informed and controlled by infrastructures designed to promote certain actions that increase the production of surplus behaviours and facilitate processes of capture and surveillance, or what Shoshana Zuboff (2019) refers to as instrumentarianism. Within these modes of algorithmic production of the self, there is risk of enshrining bias while preventing deviances from anticipated actions, thereby prescribing narratives of identity through the quantified self while providing illusions of freedom and creative expression. The purpose of this panel is to shift the attention of discourse from technological influence and development to philosophical concerns of ethics and aesthetics, with particular emphasis on how artists fracture these algorithmic illusions, using and repurposing technologies to point towards how we use and are used by them while offering alternatives. Topics presented include considerations of how social media increases individual awareness of constructing narratives of the self, leading to self-surveillance and regulation; how online narratives of trans-identity and pregnancy are introducing new modes of considering human reproduction and care that challenge certain biases while introducing new constraints on gender identity; proposing an ethical framework for the narrative self through digital technologies and social mediathrough an adaptation of Paul Ricoeur's "little ethics;" and an exploration of artistic repurposing of machine learning and Twitter as a means of revealing how personal narratives of hyperproductivity are emblematic of the self-exploiting gig economy.

Noel Fitzpatrick (*doc ès lettres, Paris VII*) is Professor of Philosophy and Aesthetics, and the Dean of GradCAM (since 2012). He is also the Head of Learning and Research Development at the College of Arts and Tourism at the TU Dublin (Dublin Institute of Technology). He teaches Philosophy of Technology and Aesthetics to postgraduate and doctoral students at TU Dublin, he supervises Post-Doctoral and PhD students at GradCAM in the College of Arts and Tourism. Noel gives seminars on phenomenology, hermeneutics, philosophy of technology at the Graduate School. He is a leading member of the European Artistic Research Network, SHARE and European Society of

Aesthetics. Noel is a member of Ars Industrialis, (Founded by Bernard Stiegler) and a founding member of the Digital Studies Network at the l'institut de recherche et innovation (IRI) at the Pompidou Centre in Paris.

EL Putnam PhD is Lecturer in Digital Media and Programme Director of the MA in Digital Media at the Huston School of Film and Digital Media, National University of Ireland Galway. She is an artist-philosopher working predominately in performance art, video, sound, and interactive media. Her work focuses on borders and entanglements of gesture, particularly the interplay of the corporeal with the machinic. Her writing and research focuses on continental aesthetic philosophy, performance studies, digital studies, and feminist theory. In addition to creating works that are rich in cultural and political meaning, including the biopolitics of motherhood in Ireland, she is interested in how aesthetic pleasure can be used as a critical strategy, or as a means of captivating audiences in order to expose them to provocative ideas.

Conor McGarrigle PhD is Lecturer in New Media at the Dublin School of Creative Arts, TU Dublin. Conor McGarrigle is an artist and researcher working primarily with digital media. his practice is characterised by urban interventions mediated through digital technologies and data-driven explorations of networked social practices. Projects include durational walking performances, large scale outdoor projections, smartphone apps and generative video installations. His research examines the implications of pervasive networked devices and computational processes through the lens of critical art practice. This work is rooted in a historical analysis of the intersections of art and technology, demonstrating how contemporary and historical practices develop new readings and critical understandings of networked technologies and emergent user practices. A particular focus is on evolving notions of space and place afforded by new spatial practices enabled through ubiquitous networked location-aware devices. This work emphasises the materiality of digital cultures, attending to hardware and coded processes alongside user practices to reveal and study the entanglements of the network in all aspects of the everyday.

John Kelleher PhD is Academic Leader of the Information, Communications and Entertainment Institute at TU Dublin. He is the author of *Deep Learning* (MIT Press Essential Knowledge Series), coauthor of *Data Science* (MIT Press Essential Knowledge series) and *Fundamentals of Machine Learning for Predictive Data Analytics* (MIT Press). His core recent interests are at the intersection of machine learning and natural language processing. Examples of recent research include word-embeddings and multi-word expressions (Salton et al., 2016), neural language modelling (Mahalunkar and Kelleher, 2018; Salton et al., 2017), automatic image captioning (Lindh et al., 2018), machine translation (Salton et al., 2014), and human-robot interaction (Schutte et al., 2017).

Session B. Digital Justice and the Shape of Societies to Come

Talks by: Catherine Pope, Tetyana Krupiy, Jagjit Kaur

Chair: Christine Aicardi

Futures thinking about AI in health care triage – some criticisms and cautions

Catherine Pope, *University of Oxford*

In June 2019 the NHS chief Simon Stevens called on technology industry to help the UK health service become a world leader in the use of artificial intelligence (AI) and machine learning. For 20 years the NHS has provided telephone triage for emergency (999) and urgent care (NHS111) services underpinned by computerised decision support. Up to now these systems have employed clinically or non-clinically trained call handlers working with decision support algorithms to manage and sort calls from patients. Alongside this NHS provision, a number of private sector companies have begun providing health information using AI, natural language processing and machine learning. One of these companies – Babylon – partnered with NHS111 to provide an NHS111 chatbot offering symptom checker advice service in 2017. This system proved controversial, to say the least, revealing serious concerns about patient safety and ‘gaming’. Studies of telephone triage have revealed that in situated practice human call handlers adapt and deviate from prescribed pathways and draw on experiential and tacit expertise. Substituting AI for human call handlers does not seem to remove these features, and may introduce new, unintended behaviours and biases. It seems that AI and associated technologies can present new risks and vulnerabilities when enrolled in health care delivery. This paper, based on empirical studies of urgent and emergency care triage, considers some critiques and cautions about the promises of AI for health care triage, with the aim of informing future research in this area.

Catherine Pope is Professor of Medical Sociology in the Nuffield Department of Primary Care Health Sciences and Fellow of Green Templeton College. Her research interests to date have centred on the organisation and delivery of health care and she has been involved in projects evaluating health services reforms, and exploring the sociology of professional practice. Recent research includes studies of the everyday use of computer decision support systems in health care, and an investigation of how people seek help when they are ill. She was previously Deputy Director of the Southampton Web Science Doctoral Training Centre, and joined the University of Oxford in 2019.

Colour versus black and white? Problematising artificial intelligence decision-making systems, the achievement of social justice and the promotion of diversity

Tetyana Krupiy, *Tilburg University*

Francesca Rossi argues that the use of artificial intelligence (AI) decision-making systems to make decisions affecting the rights of individuals has the potential to lead to fairer decision-making

processes. The perceived benefit of employing AI decision-making systems is that they produce decisions in a uniform manner. What is more, they do not take into account inappropriate extraneous considerations. On the other hand, Cathy O’Neil and Anna Lauren Hoffmann have pointed out that the employment of AI decision-making systems will lead to the entrenchment of social inequalities and will disproportionately affects marginalised communities. The present paper examines through what mechanisms the employment of AI decision-making systems produces social injustice and diminishes the protection of human diversity. It puts forward how one should conceive of AI decision-making systems based on the nature of transformations these systems trigger. The paper critically scrutinises how the manner in which data scientists generate knowledge is linked to the social processes the use of AI decision-making systems enacts. The conclusion suggests how the use of AI decision-making systems should be circumscribed to reflect society’s commitment to social justice.

I am a postdoctoral fellow at Tilburg University in the Netherlands. My research interest lies in developing regulatory frameworks in order to ensure that society can benefit from technological innovation while enjoying fundamental rights. I incorporate the voices of the communities who have historically experienced discrimination and disadvantage in my scholarship. In the past, I received funding from the Social Sciences and Humanities Research Council of Canada to enable me to carry out a postdoctoral fellowship at McGill University in Canada. My scholarship appears in journals, such as the Georgetown Journal of International Law and the Melbourne Journal of International Law.

Education, Communication and Self: Understanding the interaction between the digital technologies and human self in the schools in the Indian Context

Jagjit Kaur, *Jawaharlal Nehru University*

Communication is an important part of the classroom discourse that has been now supplemented with the usage of technological devices. The role and importance of communication can’t be undermined in the classroom context where the process of teaching-learning process takes place through the medium of communication. As has been discussed, the communicating patterns are socially and contextually determined and so, with the increase in the introduction of the technological devices in the classroom, the communication patterns are bound to change. Bruner (1996) talks about the dependence of learning and thinking upon the culture and with technology being perceived as the ‘artifacts of culture’, education is bound to emphasize upon the role of technology in the process of teaching-learning. Technology will be bound by the educational objectives and will change the course of transactions happening in the classroom. In the American context, the introduction of the technology has necessitated the need for the restructuring schools which involves the teacher’s role, the skill development of the students such as communication, problem solving among other factors. (Carbone 1995:11) With the introduction of new technologies in the arena of education, the process of education gets altered as there is a ‘diminution of space/factor in learning’. (Pathak 2002: 161) The project of

modernity had led to the development of technology and its advancement with the passage of time. In the wake of globalization, liberalization and privatisation, the technology has not only created its own industry in society but also intruded in the education system as well. The corporate groups governing educational institutions devise new technologies, methods and tools which aid expand in the teaching learning process. On the other side of the spectrum, it generates a fear that technology may replace the convention medium for communication. This doesn't happen in a vacuum but in a context of the changing patterns of communication in the society at various levels. The manner in which these technological devices structure and shape the communication patterns and the self in the society is beyond the control of those who use it for fulfilling various needs. This study, therefore, aims to study the changing patterns of communication and self in the education system due to the increasing level of dependence on the technological aids. It enquires upon questions such as- How have the educational technologies changed communication patterns in the classroom discourses which includes pedagogy and curricula? , What is the role of technology in reshaping the role of the teachers, students and other participating agencies in the classroom?- among many others. This study is based in schools in Delhi-NCR which has been the hub of growth of ICT industry as the data suggests and has impacted the education system in the vicinity. By looking at the ways in which the content of the curriculum and it's transactions are impacted by the introduction of digital technologies in the schools, this study throws some reflections on the interactions between self, technology and education, the future of technologies in education and the wider role of technology in shaping and re-shaping our lives.

Jagjit Kaur is a student in the Ph.D program at Zakir Husain Centre for Educational Studies, Jawaharlal Nehru University working on Technology, self and communication in education. She read for the MPhil in education from Zakir Husain Centre for Educational Studies and her dissertation was on Globalization and Early Childhood Education. Her primary research interests are education, curriculum, self and pedagogy in the present times characterized by liberalization, globalization and privatization. She has completed Bachelors in Elementary Education from Lady Shri Ram College, Delhi University and M.A. in sociology at School of Social Sciences, Jawaharlal Nehru University. As a Bachelors student, she also did a research-based project on children's literature and it's relevance in the classroom as a part of course work. She has presented various papers on Gender, Digitization of education, Education in the post-independence era in India and so on at prestigious conferences. Her writings have been published in reputed journals such as Indian Journal of Educational Technology, National Council of Education, Research and Training, India among many others. She has worked as an education specialist for Flow India, curriculum developer for IL&FS Education and Technology Ltd., Inspire Education on a freelance basis.

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Session C. The Shifting Nature of Identity in a Digital Society

Talks by: Leah Henrickson, Charles Smith, Sabine Thürmel

Chair: Madeleine Chalmers

Narratives of Narrative Systems: Searching for the Human in Computer-Generated Texts

Leah Henrickson, *Loughborough University*

The last two decades have seen the establishment of numerous companies driven by computer programs capable of generating textual narratives at speeds unparalleled by human writers. Using natural language generation (NLG), these companies produce, for example, stock reports, weather reports, and personalised fitness reports. NLG mechanises otherwise monotonous text production practices, paradoxically ‘humanising’ data by translating numbers into narrative.

NLG brings conventional understandings of authorship into question. How do humans and NLG systems collaborate in the new labour economies emerging from mechanisation? Who is the author of the computer-generated text? Do NLG systems render human writers obsolete? This paper will argue that the narratives we craft about NLG systems that themselves are crafting narratives are informed by expectations for ‘humanness’ in textual output and an underlying concern for human obsolescence. Computer-generated texts represent today’s digital ecology, transforming what has largely been seen as an extension of the human self – text, the claim to authorship – into an obscure entanglement of human and computer involvements. Yet by applying a sociological perspective to an analysis of computer-generated texts, we can see these texts more clearly as what they are: human artefacts that augment – rather than affront – the human experience. Despite concerns that NLG systems may obsolesce human writers, in actuality this technology’s output speaks to a wholly different part of the human experience: the ongoing negotiation of human-computer interaction as we dive deeper into our digital age.

Leah Henrickson is a doctoral candidate at Loughborough University. Her doctoral research aims to discern the social and literary implications of natural language generation and computer-generated texts, particularly from a book history perspective. This research has been published in such journals as Digital Creativity, Logos, and Authorship, as well as in numerous popular outlets. Leah is currently developing a postdoctoral research plan for a broader study of social and literary perspectives of/commentaries on artificial intelligence technologies that use and produce natural language. Follow her on Twitter at www.twitter.com/leahhenrickson.

Corporatised Identities ≠ Digital Identities: Social Media and the Exploitation of Expressions of Digital Identity

Charles Harry Smith, *University of Oxford*

This paper contends that digital identities underpin almost everything that individuals do online. Most citizens in liberal democracies now maintain profiles on social media platforms like Facebook, Google and Twitter. Throughout, however, I argue that neither these user-maintained social media profiles, nor the deeper identities that social media companies covertly generate from their statistical analyses of harvested user data, should properly be understood to be digital identities in the fullest sense of the term. This follows from recognising the common conflation of several different concepts. Firstly, I contend that much of the research surrounding the effects of social media actually focuses on the harms caused by corporatized identities – poor approximations of digital identities, inferred and extrapolated by algorithms from mere expressions of an individual’s digital identity – rather than any harms done to digital identities tout cour. And, secondly, that these expressions of digital identity are themselves comprised of two interrelated but distinct elements that are also often conflated, digital performances (boyd, 2007) and digital artefacts (Hogan, 2010). This paper elucidates the differences between all of these related, but distinct, kinds of identities and presentations of self, further updating Goffman’s (1959) work for the digital age and emphasising the “informational nature” of identity (Floridi, 2011). Finally, this suggests that further research into digital identities themselves is urgently required – because a narrow focus on these corporatized identities and expressions of digital identity overlooks the deeper ethical issues surrounding our digital selves.

Charles Harry Smith is an incoming DPhil student in Information, Communication and the Social Sciences at the Oxford Internet Institute. His research focuses on the ethical, social and political issues surrounding digital identities and mass surveillance, specifically federated governmental digital identity systems in the UK. He recently finished reading for an MSc in Political Theory at the London School of Economics and also holds a BA in Philosophy from Durham University. Whilst at Durham, Charles was Editor-in-chief of the undergraduate philosophy journal, *Critique*, and spent a year studying aboard at the University of Hong Kong. He is now looking forward to four years of inter-disciplinary research at the OII and can’t wait to attend Futures Thinking, which marks his first conference presentation as a PhD student!

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Alternative Futures: Experimenting with Predictive Algorithms

Sabine Thuermel, *Munich Center of Technology in Society*

Big data practices aim at generating hypotheses on the future based on past or present data. However, these hypotheses do not merely provide predictions about the future, they also have an impact on the future when used to engineer the “not yet”.

Current applications of these predictive or even prescriptive practices are found in a whole variety of fields ranging from predictive medicine to predictive policing. They are used for the optimization of individual behaviour and the optimization of the overall behaviour of a social system. The goal is not to think about the future but to shape it using the output of these algorithms to nudge or even coerce the people involved towards a certain behaviour. However, humans may not only behave as intended but also act in a subversive way demonstrating that “individuals are the vehicles of power, not its points of application” (Foucault). One could use fictional data and experiment with predictive algorithms to generate alternative futures and alternative narratives. Thus, these predictive environments could open up possibilities for undermining such systems. They are “dispositifs” in the Foucauldian sense possessing the dual structure of manifestation of power and the possibility of subverting it. Narratives based on predictive technology using fictional data could become more fluid. The engineering of the “not yet” could be replaced by the experimenting with the “not yet”. Such a new way of engaging with technology could foster the creativity of the users and open up new perspectives, a novel way of futures thinking.

Interdisciplinary work on the foundations and effects of culture changing information technologies is my focus since the 1990s. My background is both in computer science (Ph.D. in Computer Science) and philosophy (Ph.D. in Philosophy of Science and Technology). As a computer scientist I have first-hand experience in creating and deploying the technology I write about from a philosophical perspective. I profit from my work in academia and industry. Currently I am an independent researcher and a lecturer at the Munich Center of Technology in Society at the Technical University of Munich (TUM). For details esp. publications see <http://www.sabinethuermel.de/> where computer science meets philosophy.

Session D. Science Fiction - Writing Another World

Talks by: Chen Ma, Lucy Nield, Christine Aicardi

Chair: Chelsea Haith

Time Immigrant: Sense of Risk and Destination

Chen Ma, *SOAS University of London*

Liu Cixin's *Time Immigrant* (2014) is set against the backdrop of escalating overpopulation issue. It depicts human attempt to immigrate to the future planet, with the hope to ameliorate unstoppable population growth and ecodegradation. At numerous destinations—120 years later, 600 years later, 1000 years later—"Ambassador " is continuously frustrated with the uninhabitable earthly environment for his people. Scholarly discussion on literary reflection of "overpopulation" highlights the emotional propaganda effect generating from the related ecological narratives. However, it simultaneously overlooks the incongruity between the "feel" and the facts of overpopulation, which, according to Ursula Heise, conveys a moment of emotional confrontation rather than rational comprehension. By examining Liu's treatment of the aftermath and potential solutions of overpopulation, I suggest his narrative interrogates what Thornber defines as "the illusion of environmental well-being," and navigates towards "uncanny and uncertainty," which, according to Timothy Morton, unexpectedly entices human agency in obtaining the real ecological thought. From this instance, I argue that Chinese science fiction writers like Liu Cixin demonstrate an awareness of the distorted environmental realities resulting from the accentuation on a specific moment of emotional confrontation, which is often times triggered by the imagination of local context. It stresses on how our sense of overpopulation is affected by other socio-political, historical, and even philosophical factors. This story can be read through the lens of Ursula Heise's eco-cosmopolitanism, pointing to the fact that human agency is often enticed via the detachment from their anchorings in particular geographies, regions, and cultures.

***Chen Ma** is a PhD student in Department of China and Inner Asia at SOAS University of London. Her research interest lies primarily in the increasing role for science fiction as a way of thinking about other fields, such as ecology, urbanism, and politics in contemporary Chinese context. Her current research project is funded by Universities' China Committee in London (UCCL). It mainly looks into the ecological narratives from Chinese sf published between 2009 and 2019, during which period China's socio-political climate has changed as immensely as its ecological climate. Her analysis attempts to uncover the complex interplay between nature, culture, politics, ethnic relations, and international relationships under the changing global context.*

‘They’d call us Gods’: Technologization of the body in Paulo Bacigalupi’s *The People of the sand and Slag*. A haunting look at the future for humanity with technology.

Lucy Nield, *University of Liverpool*

As Jacques Derrida states, ‘now is the time for a new thinking,’ with the confusion and rapid changing of humanities position in the world, particularly in regards to technological advances, many in the fields of science, philosophy and animal studies are researching the possibilities of what humanity could technologically accomplish in the coming years.

Science Fiction authors, such as Paulo Bacigalupi, explore these possibilities as well, by using contemporary fears surrounding humanities concerns about the environment, longevity and human relationships, to present a dystopian technologized future. Bacigalupi uses his own technologized world to present haunting possibilities for changes in human attitudes and relationships due to technology.

This paper will aim to explore the changes technologization of the body and the world may cause for humanity. By using Bacigalupi’s story, *The People of the Sand and Slag*, as a representation of the fears surrounding technology and anthropocentric attitudes, I aim to discuss the possibilities Bacigalupi explores as well as the aspects of humanity that may atrophy due to technologization.

Lucy Nield is a PhD student in the Department of English Literature at the University of Liverpool. Her research interests include animal studies, the anthropocene, posthumanism and anthropomorphism within science fiction. She is the lead organiser for the Current Research in Speculative Fiction conference at the University of Liverpool and has also had her poetry published, which can be found within the Pandora’s Box series

Engaging with the makers of future-oriented technologies through near-future science fiction writing

Christine Aicardi, *King's College London*

There is more and more emphasis placed on ensuring that future-oriented technologies are researched and developed responsibly, to benefit society at large. How this is to be achieved, however, raises thorny questions such as, whose views get to be represented in the decisions that are shaping our collective tomorrow? How can we engage diverse publics into concrete discussions of collective responsibilities? How can we encourage reflexivity in scientists and technologists? The present paper will focus mainly on the last of these questions. I will present results from a qualitative social scientific study realised on empirical material (fieldwork notes, interviews, panel discussions) that was gathered across a series of collaborations with sci fi authors. Near-future short fictions inspired by lab visits and discussions with technologists and scientists were used as springboards to try and create spaces that would encourage

transformative conversations between technologists, scientists and different publics. My analysis will show how these fictional narratives could open scientific and engineering practices to scrutiny, by making visible aspects of scientists' and technologists' work that are not usually picked upon in traditional public engagement exercises. Based on my findings, I will also propose that near-future science fiction is especially adequate as a medium for engaging makers of AI and robotics into ethical and social reflexion.

***Dr Christine Aicardi** is senior research fellow of the Human Brain Project Foresight Lab led by Prof Nikolas Rose, in the Department of Global Health & Social Medicine at King's College London. She originally trained as an engineer in France and worked for many years in the tech industry before returning to higher education to pursue PhD in Science and Technology Studies at University College London. Her research interests are the sciences and technologies of brain and mind; the study of how scientists and engineers work and collaborate; the role of imaginaries in shaping science; and the use of science fiction writing for participatory and public engagement in science. Quite a bit of the latter is strongly fuelled by her non-professional taste for science fiction and fantasy.*



Day 2

Panel 2: A Future Worth Fighting For: Technology's role in Challenging the Erasure of Disabled People from Visions of the Future

Speakers: Dan Holloway, Kate West, Clouds Haberberg

It has always been a matter of choice (or, too often, simply not thought about, and therefore a result of unintended consequence) for abled people whether disabled folk have a place in their vision of utopia. Our place in their future has literally been a matter of whim or oversight. Nowhere has this been more apparent than in the recent campaigns for a world free of single use plastic, where the needs of disabled people are either not even considered, or considered to be a necessary sacrifice. For disabled people any vision of the future, of necessity requires thought about the abled, and has required their presence, in order to accommodate our needs.

Technology, automation, artificial intelligence, robotics for the first time ever offer the prospect for disabled people of having a vision for a utopia where the presence of the abled is a matter of choice.

This panel offers three perspectives on this theme drawn from disciplines across the Humanities and Social Sciences. Taken as a whole, they offer

- a warning that without vigilant, even the most idyllic-seeming future could be one from which disabled people are absent;
- the critical tools to identify, and challenge, trends in this direction; and
- the possibility of alternative models of the future in which disabled people are not only present but centred.

Kate West is a Criminologist and is also the creator of the website *Dyslexic Academic* and author of the book *“Transforming the Neurotypical Academy for the Digital Age.”* She will examine the way in which higher education excludes neurodivergent academics, and how technology can transform teaching, learning, and research to create a more inclusive academy

Clouds Haberberg is a disabled writer and musician and co-founder of the *Forge Ahead Network*, which helps disabled people working in the creative and third sectors. They will look at the potential cyberpunk offers for disabled people for imagining their future existences.

Dan Holloway is a theologian and disability rights activist who works on the way taxonomy can limit or expand people's imaginative space. He will argue that much environmentalism excludes disabled people from its visions of an ideal world by co-opting the concepts of holiness, utopia, and disgust.

Session E. Publishing Futures and Machine Learning

Talks by: Laura Dietz, Abbie Smith A, Eric White & John Twycross (AGAST)

Chair: Dan Holloway

'Really? You think I'm that kind of person?': Amazon profiles as components of readerly identity

Laura Dietz, *Anglia Ruskin University*

Amazon promises tailored reading, from personalised book recommendations based on past purchases and product ratings (Amazon, 2019a) to instantly updated 'time left in book' estimates based on reading speed (Amazon, 2019b). Some readers experience such tailoring as harmless or helpful, with on-target recommendations only problematic when they are 'too tempting' (focus group 3, participant 4). But to others, 'corrupt' (focus group 3, participant 5), 'judgemental' (focus group 5, participant 1) and 'embarrassing' (focus group 5, participant 5) assessments are not just intrusive, but actively 'insulting' (focus group 3, participant 1). This 20 minute paper will present original data from surveys, focus groups, and interviews to explore how readers can experience Amazon algorithm results as forms of public judgment, and the ways in which readers incorporate their 'Amazon selves' - and resistance to these corporate-controlled profiles - into self-image and bookish identity. In addition to Richards' theories on intellectual privacy as a human right that 'protects our ability to think for ourselves, without worrying that other people might judge us based on what we read' (2013, p.693), this paper will draw for its theoretical framework on Bourdieu's theories of cultural capital (1986, 1993, 1996), Genette's conception of paratext (1997), and Thompson's work on the sociology of publishing (2012). It would harmonise with the conference strands on narrativising the digital self and the future of publishing.

Dr Laura Dietz is a Senior Lecturer in Writing and Publishing at Anglia Ruskin University. She writes novels and studies novels, publishing fiction alongside papers and chapters on topics such as e-novel readership, the digital short story, online literary magazines and the changing definition of authorship in the digital era. She speaks regularly at festivals and academic conferences and is the editor of the Digital Literary Culture gathering of the Publishing and Book Culture series of Cambridge Elements (Cambridge University Press).

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Exploring the publishing industry’s response to Artificial Intelligence to augment the editorial process

Abbie-Leigh Smith, *Anglia Ruskin University*

Artificial Intelligence (AI) is influencing our lives in ways that we don’t see, from self-driving cars to Netflix recommendations. Publishing, as with many other creative industries is undertaking the extremely difficult task of having to integrate new technologies such as AI. I am looking to gain an understanding of whether publishing houses feel comfortable employing AI to augment the publishing process. This paper will draw on interviews as data to explore the response from professionals who will be directly affected by the use of AI in publishing –specifically to help make editorial decisions. The presentation offers a critical analysis of our perception of AI and whether it has a place in the publishing industry. Are editors happy to work alongside technology to ensure that the books we create are bestsellers, or are we happy to continue playing a game of risk in order to preserve the ‘wholesome’ industry? Do we trust our own judgement more than that of an algorithm? I believe that we will be able to understand our collective perception of AI enough to help explore how to introduce more advanced technology into the publishing world, in a way that is exciting and inspiring.

Abbie-Leigh Smith works as an Editorial Assistant at a regional newspaper publisher and an MA publishing student at Anglia Ruskin University. Her research explores the position of AI and the role it plays or is likely to play in the publishing industry.

‘The Avant-Gardes and Speculative Technology (AGAST) Project “Reading Machine”’: The Future of Augmented Reality is in the Past’

Eric White and John Twycross, *Oxford Brookes University*

Founded in 2014, the AGAST Project is an interdisciplinary team of humanities scholars, digital media artists, writers, and Augmented Reality (AR) researchers. Its work recovers inventions by experimental artists and writers of the twentieth century that were designed to promote social

change via technicity, or the power of technology to engage with social relationships. This paper focuses on AGAST's latest AR project, 'The Reading Machine', which is based on a 1930 design by the American dada poet Bob Brown. Combining microfilm technology and avant-garde visual prosody, Brown envisaged a cheap, portable machine that streamed texts across a viewing screen. However, he also imagined an immersive reading experience that anticipated the internet and AR, and his vision inspired modernist luminaries such as Gertrude Stein, Ezra Pound, and William Carlos Williams to write sample texts for the device. In 2017, the AGAST invited collaborated with the British novelist Iain Sinclair to re-imagine Brown's Reading Machine. The AR installation featured animated texts emerging from defamiliarized landscapes in Oxford, which explored how language, infrastructure, and urban planning excludes certain groups from city spaces. Developing artist-led co-creation strategies from this experience, AGAST began collaborating with several community groups in Oxford and London to explore related problems of urban marginalisation. The result has been a new series of Reading Machines co-created in a series of rapid prototyping, coding, and creative writing workshops. The paper explores how these new AR installations – and the interdisciplinary methods they emerged from – enable marginalised youth to write themselves back into the city's narratives, using technology that they are in control of.

***Dr Eric White** is Senior Lecturer in American Literature at Oxford Brookes University. His research focuses on avant-garde writing, literary networks, and technology. He published his first book, *Transatlantic Avant-Gardes: Little Magazines and Localist Modernism*, with Edinburgh University Press's in 2013. His second book will appear next year under the title *Avant-Gardes, Technology, and the Everyday*, also with EUP. Together with Craig Saper he is co-editor of *Readies for Bob Brown's Machine: A Critical Facsimile Edition* (EUP 2019), and is leading an Impact Case Study featuring the AGAST Project.*

***John Twycross** works as a Senior Lecturer in Digital Media Production at Oxford Brookes University. His extensive and diverse experience of working commercially in the fields of television, film and interactive production provide a strong experiential context to his academic endeavours. His current research and teaching covers areas such as character modelling and animation, motion capture, interactive media, game design and television news production.*

Session F. Making Spaces, Making the Future:

Talks by: Christian Keller, Bronwin Patrickson, Ray op'tLand

Chair: Tomoko Kitagawa

Poeticising the Pre-Dictate

Christian Keller

The actual and present force feedback of virtual realities has become ever more apparent with data-based distribution and governmentality of predictive algorithms in recent years. On top of the list, simulation concepts like pre-crime action, pre-emptive warfare and premediation (Richard Grusin) have risen to the forefront of instrumentalising models of virtuality to frame and select probable time scales. Consequentially, possible and potential futurities have been translated into irreversible and constructive sets of actuality – and ultimately: physicality. This way, physical and material contingency have been left behind, aspects of uncertainty, situationality and non-linearity of emerging realities as essential parts of the relational configuration of the world have been neglected. In the words of physicist Ilya Prigogine, such a world of time-reversibility and governmentality can be regarded as 'the totalitarian nightmares described by Aldous Huxley, Milan Kundera, and George Orwell'.

Countering this marginalisation of material contingency, my argument will suggest that we should be looking at aspects of material performativity in the realm of arts to reinvigorate once again material contingency and open futures: Not only have achievements from the arts, such as the changing colour-scheme of the famous Lycurgus cup as a nano-technological phenomenon, driven technological analysis and synthetic experimentation in accordance with ideas of autopoietic motorisation, but in his 1954 essay *The Question Concerning Technology* Martin Heidegger already pointed out that the calculus of scientism and economic expediting only frames the materiality of technology in ways which merely turn it into standing reserves. He therefore called upon *poiēsis*, upon the arts to reintroduce alternative ways of thinking about *physis* in modern technology.

Analogously, in present day philosophy, speculative realist Armen Avanessian has also called for poeticising technology to affirm and create difference. Thus, drawing on a selection of contemporary transmedial art installations, I will argue that the arts should be regarded as a sphere of non-philosophical and non-scientific practices, which implicitly criticise conventional analytical approaches that simply perform a legitimacy of their own decisional structure: The way these artworks make use of material performativity rather opens up to what Lyotard has called a simple event, a 'raw state', 'an occurrence' ('ein Ereignis' - a term borrowed from Heidegger).

Christian Keller works as freelance translator and editor/critic for contemporary dance and theatre. He studied Theatre, Film and Media Studies at the University of Vienna and completed his MA in Theatre and Performance Studies at King's College London. He currently takes part in a joint PhD programme between King's College London and Humboldt Universität zu Berlin, focusing on contemporary transmedial art installations that reveal aspects of a 'natura ex machina'.

The designed fiction of the invisible interface

Bronwin Patrickson, *University of South Wales*

In 1991 a researcher at Xerox Parc, Mark Weiser used terms like “invisible computing”, “embodied virtuality” and “ubiquitous computing”, to propose that distributed networks of location-aware devices of various sizes would eventually become so invisible and seamlessly inter-connected that people would “cease to be aware” of them (Weiser 1991).

Weiser’s vision is now being realised by ubiquitous computing technologies that promise wide-ranging new capacities, but also introduce new tensions between the drive for seamless interaction, including (in the wake of the Cambridge Analytica scandal) the implications that “invisible computing” may hold for the formation of networked publics. In this paper I propose to interrogate those implications through the lens of design fiction, by conducting what speculative designers Dunne and Raby (2013) have called “thought experiments” (Dunne and Raby 2013: 80), regarding potential future interface designs.

Simplicity, metaphor and accessibility are potent sense-making tools of human, computer interaction design. At the same time, however, these entry points are constructions (Drucker 2011) that also create a material intervention that changes the ways that people experience systems. Whether, or not this construction precedes and therefore replaces reality (Baudrillard 1981/1994), or continues to be characterised by its difference from the real world (Deleuze 1994), nevertheless since the interface presents the system to its audience, then public understanding of the nature of an unfolding encounter with that system is potentially distorted.

Understanding this shines light on the formative nature of design fiction.

Bronwin Patrickson is a digital design researcher with interests in social, humanist interaction design, in collaboration with the environmental humanities. Working as a post-doctoral Research Fellow she has explored the implications of data-sharing technologies, as well as the emergence of hybrid, immersive, playful ecologies that straddle the borders of play, sociality, narrative and drama. She has a Ph.D. in interactive media from Macquarie University in Sydney, Australia. Recent publications include an examination of audience engagement with animal video-game role play characters, as well as a rethink of Gutenberg’s movable text apparatus, as a metaphor for the digital text era

Makers in the workshop: aesthetic influences on innovation at 3 makerspaces

Ray op'tLand, *University of Calgary*

Makerspaces have grown as sites of innovation since the turn of the 21st century, but the processes and methods by which they have directly contributed to innovation have been underexplored. Makerspaces exist as communal digital-material hybrid workshops that draw on networks of knowledge in order to create their community, and they live and die by this community as well. Building on literature on both innovation and communication, this research examines the communities at three specific makerspaces in the Calgary area via ethnographic case studies. By examining the development process at makerspaces, this research asks 1) how are the ideas and inspirations for the development of a new technology transferred between developers and their collaborators? 2) what sources of inspiration and new knowledge, aesthetic or otherwise, do the developers use for both the subjective and functional components of their design? and finally 3) what is the role of the makerspace as a third place where developers can collaborate and share ideas during the development process? This research contributes in three areas: 1) it informs current theories on innovation on the processes that involve subjective elements in the process of innovation; 2) it advances the literature on makerspaces and their communication processes, especially their study in Canada, and 3) it initiates and advocates for the development of a critical maker studies, as a counterpart to much of the literature in the area published to-date.

Ray op'tLand is a PhD Candidate at the University of Calgary in Alberta, Canada, who researches makerspaces, knowledge transfer, and communication networks. His previous research has investigated the literary antecedents to virtual reality, and has published in several journals including the *Journal of Virtual Worlds Research* and *Publisztik*. Ray has delivered over two dozen conference presentations, and has spoken at a number of non-academic events including the *Calgary Comic Expo* and *Telus Spark Science Center*.

Panel 3: Lit Hits Digital Reading Project

Speakers: Kirsten Shepherd-Barr and Alexandra Paddock (*University of Oxford*)

LitHits is an innovative digital reading platform that allows users to read extracts from the world's greatest literature directly on their phone, based on how much time they have and what they are in the mood to read. Curation of texts and extracts by researchers in Oxford's Faculty of English is a key component of this work and is likely to generate substantial data on habits of reading, modes of engagement with texts, and more effective ways of identifying and categorizing literature. Professor Shepherd-Barr and Dr Paddock will discuss the project, what they have achieved so far, and how they want to use mechanisms broadly related to AI--such as natural language processing and automatic summarization--to help the sourcing and curation of suitable extracts.

Professor Kirsten Shepherd-Barr is a Professor of English and Theatre Studies in the Faculty of English at the University of Oxford and a Tutorial Fellow at St Catherine's College. She served as the Knowledge Exchange Champion for the Humanities at Oxford (2015-17). Her books include *Theatre and Evolution from Ibsen to Beckett* (Columbia University Press, 2015), *Science on Stage: From Doctor Faustus to Copenhagen* (Princeton University Press, 2006; 2012 paperback), *Modern Drama: a Very Short Introduction* (Oxford University Press, 2016), *Ibsen and Early Modernist Theatre, 1890-1900* (1997), and *Twenty-First Century Approaches to Literature: Late Victorian into Modern* (OUP, 2016) which she co-edited with Laura Marcus and Michele Mendelssohn. She regularly works with theatres including the National Theatre, the Old Vic, Theatre for a New Audience (New York), Pegasus Theatre Oxford, and the Oxford Playhouse.

Dr Alexandra Paddock was awarded her DPhil by the University of Oxford in 2017, and is Editorial Lead and postdoctoral researcher for the 'LitHits' project at the Faculty of English, University of Oxford. She is also Assistant Senior Tutor and Lecturer in English for the Middlebury College-Centre for Medieval and Renaissance Studies Humanities Programme. Before taking up her post, she was Lecturer in Medieval English at Keble College, University of Oxford (2015-2018).

Alexandra is a specialist in literature and environmental humanities scholarship, with an emphasis on medieval literature. She examines the ways in which animals constitute and even behave as the natural spaces in literary depictions, such as the island-turned-whale of the Exeter Book *Physiologus*, or the omnipresent horse-God of Peter Shafer's *Equus*. This literary phenomenon is the topic of her current monograph, *Beastly Matter: Geomorphic Animals and Literary Description*. In addition, she has co-published, with Kirsten Shepherd-Barr, a bibliography on writer and actor, Elizabeth Robins (2018).

Day 3

Roundtable

Psychiatry and Futurity: What we know and how we can use it

Dan Holloway, Madeleine Chalmers, and Ulrik Lyngs

This roundtable brings together speakers from diverse fields to consider how representations of research into mental illness, 'madness' and wellbeing contribute to present day notions of psychological wellness. The conversation hopes to develop around what might be done with currently existing research to better understand how mental health can be understood, supported and enhanced.

Speakers:

Ulrik Lyngs

*With an interdisciplinary background in cognitive psychology, evolutionary anthropology, and the study of religion, Ulrik Lyngs is now finishing a DPhil in Computer Science at the University of Oxford. Here, his doctoral research examines design strategies for supporting self-control over digital device use. He previously worked in London as a producer for the world's largest philosophy and music festival, *HowTheLightGetsIn*, and he has chaired panels on ethics and the limits of learning algorithms at Oxford's Computer Science Department.*

Madeleine Chalmers

I'm a 3rd year PhD student at the University of Oxford. My project explores how avant-garde French literature of the late nineteenth and early twentieth centuries negotiate the increasingly tight imbrication of technology into human life, and the challenge it poses to how we think about ourselves, our relationship to others and to our world. I seek to place these texts of the past in dialogue with current philosophical reflections on technology, to explore how this encounter can help us to think about our technological present, and future.

Dan Holloway

Dan Holloway is a theologian and disability rights activist who works on the way taxonomy can limit or expand people's imaginative space. He will argue that much environmentalism excludes disabled people from its visions of an ideal world by co-opting the concepts of holiness, utopia, and disgust.

Session G. Modalities, music and art

Talks by: Tomoko Kitagawa, Robert Laidlow, Giovanni Colavizza & Massimo Franceschet

Chair: Anne Ploin

Virtual Reality Meets History: The 4-D Storytelling

Tomoko Kitagawa

Imagine you are in a college classroom, taking a history course. When history assignments come in the digital format, what kind of homework do you expect to complete?

Paper assignments have been the norm in the history class for quite some time, and reading and writing books have been the core parts of historical studies. However, recent developments in digital technology have profoundly changed the ways in which historical narrative is presented.

This talk shows the examples of “4-D (four dimensional) history movies” in which college students present history using self-designed virtual reality. In the samples, you will notice a significant epistemological shift in historicity; what we thought of “history” has been transformed into something completely different.

Dr Tomoko L. Kitagawa is a writer and historian of mathematics. She received her PhD from Princeton University and went on to teach history at Harvard University where she was cited as one of the favourite professors at Harvard by the class of 2012. Her first book, published in Japan, became a national bestseller. She was selected as one of the 100 most influential people in Japan and one of the 100 most amazing Japanese women. While publishing four more books in Japan, she continued her academic work at Wolfson College Cambridge, the Max Planck Institute for Mathematics, the University of California, Berkeley, and the University of Oxford. In 2017, a documentary covering her life and career thus far was filmed in India, Japan, and the United States, and was broadcast in Japan. She also appeared on BBC’s Forum in 2018. www.tomokokitagawa.com

Composing with the Machine: Creating contemporary classical music in collaboration with artificial intelligence

Robert Laidlow, *Royal Northern College of Music*

The field of Artificial Intelligence has expanded dramatically in recent years, with AI becoming an indispensable tool in a range of disciplines. Many data scientists are now interested in how AI could be utilised as part of the creative process. As a composer myself, my research is focused on incorporating artificial intelligence into the classical compositional process in close

collaboration with data scientists, to create works that can be presented equally in conference hall and concert hall contexts.

Here I present the process and results of my recent compositional work in collaboration with computer scientist Christine Payne (OpenAI), who specialises in creating machine learning algorithms that generate music. The AI model we have created together has been trained on my own music and can produce work “in my style”, but distinct from my existing work. Incorporating it into the compositional process, therefore, becomes a three-way collaboration between myself, the programmer, and the AI itself where each can influence the work of the others.

The resultant compositions demonstrate the challenges of collaborating with AI to create music, but also hint at a promising future where AI could become a tool used by composers to explore music in new ways. Discussing details of the algorithm itself, with examples of its outputs alongside my own original music for comparison, I will highlight the elements of AI-generated musical ideas that are both artistically stimulating for me and genuinely original, as well as showcasing the difficulties inherent in this new kind of collaboration.

***Robert Laidlow** is a composer and researcher studying at the Royal Northern College of Music. His research topic is “Using Artificial Intelligence in Contemporary Classical Music Composition” and aims to explore the creative and artistic directions possible in the wide and emerging field of artificial intelligence, through the composition of works that can be presented equally to industry-professionals and concert-going audiences. His AI-based works, created in collaboration with computational artists in the UK and abroad, have been broadcast on BBC Radio 3 and performed by ensembles including the BBC Philharmonic Orchestra, the Britten Sinfonia and the RNCM New Ensemble and have been commissioned by organisations including the Barbican Centre. roblaidlow@hotmail.co.uk*

Crypto art: A decentralized view

Giovanni Colavizza (*University of Amsterdam and The Alan Turing Institute*) and Massimo Franceschet (*University of Udine*)

Rare digital art, also known as crypto art, is a limited-edition collectible art cryptographically registered with a token on a blockchain. Tokens represent transparent, auditable origin and provenance for a piece of digital art. The blockchain technology allows tokens to be held and securely traded from one collector to another. Started in 2018, the crypto art movement is rapidly growing and allowing to experiment with a much faster and distributed art market, particularly favoured by millennials and generation-Zs, as well as with new forms of digital art-making and art-experiencing solutions.

We present a set of viewpoints on crypto art, contributed by artists, collectors, gallerists, data scientists and art historians [1]. These viewpoints cast a light on the following thematic areas, brought together by crypto art: the historical roots of the artistic movement, the values of crypto

art, the ways to engage the community and new collectors, the economics of crypto art, its links with the blockchain technology, and crypto art analytics. In particular, we showcase this last point with our work on developing art metrics using SuperRare gallery data [2]. Crypto art data is fully open and accessible: artworks, their metadata, transactions (creations, bids, and sales), altmetrics (views and likes): this unique feat will allow to understand and, potentially, forecast success in digital art markets at unprecedented detail and precision.

Giovanni Colavizza is an assistant professor of digital humanities at the University of Amsterdam. He also is a visiting researcher at the research engineering group of The Alan Turing Institute and at the quantitative science studies group at the Centre for Science and Technology Studies (CWTS), Leiden University. Giovanni works on machine learning and data science applied to GLAM collections (Galleries, Archives, Libraries and Museums) and on the use of computational methods in the humanities.

Massimo Franceschet is an associate professor of computer science. He teaches Data Science at the bachelor's degree in Internet of Things, Big Data and Web and Network Science at the master's degree in Computer Science at the University of Udine in Italy. As a researcher, he has published 60 peer-reviewed publications in the fields of data science, complex networks, bibliometrics, logic and artificial intelligence. Under the name HEX0x6C, he is also a generative artist, with works exhibited on different galleries including SuperRare and KnownOrigin.

References:

- [1] <https://arxiv.org/abs/1906.03263>.
- [2] <https://superrare.co>.

Session H. Urban Spaces and Future Selves

Talks by: PM Krafft, Amillin Hussain, Tomas Čiučelis

Chair: Tetyana Krupiy

Innovation and Civic Good: A Critical Examination of Seattle's Innovation Advisory Council

PM Krafft, *University of Oxford*

How does the way that "innovation" is conceptualized in city governance impact the way resources are distributed? This ethnographic case study reports from a smart cities initiative from within the City of Seattle to harness local technology firms to provide "in kind" public service; Mayor Jenny Durkan's Innovation Advisory Council (IAC) convenes leadership from tech firms like Microsoft, Amazon, Twitter, and Zillow. Teams from the city pitch ideas to the IAC in an effort to elicit support for "technology solutions including new data analytics, dashboards, applications, and software for the City," with a particular focus on how projects can address the city's homelessness crisis and transportation challenges (Press Release, August 2, 2018). Our analysis situates this case study within the context of contemporary local discourse and policy controversies critical of the impact of locally based tech firms on city infrastructure. We argue that the IAC initiative illustrates a rationale underlying smart cities initiatives overall; namely, one that valorizes the private sector within a tradition of problem solving by means of technical expertise-- an impulse that has been variously described as masculinized, High Modernist, and techno-solutionist. In our discussion, we highlight how the Innovation Advisory Council may reconceptualize and interpenetrate notions of "state," "firm," and "citizen," and argue that important publics and stakeholders are overlooked when these boundaries are so reconfigured.

P. Krafft is a Senior Research Fellow at the Oxford Internet Institute within Oxford's Social Sciences Division. Dr. Krafft's research focuses on beliefs, ideology, and institutions in the information society. Dr. Krafft also works and organizes in the area of public interest computing.

Virtual "Void-Decks": When Neighbourhoods Expand Online

Amillin Hussain, *University of Oxford*

This paper aims to explore the "cyber-urban" as a socially potent assemblage with the potential to broaden understandings of how narratives of self and place can be developed across hybrid spaces that negotiate multiple geographical and temporal spaces at once. Two main questions will be discussed: (1) How do we map out the spatial dynamics of contemporary high-rise living, if interactions are increasingly taking place in virtual/electronic spaces? (2) What are the implications of these "cyber-urban" assemblages on the social nature of new neighbourhoods, and residents' sense of place?

This paper draws on ethnographic fieldwork done in the Singaporean neighbourhood of Punggol over 2018-2019, with the aim of showing how the concept of the “cyber-urban” can be used to explore the ways in which common spaces in new neighbourhoods are hybrid constructions with the ability to direct and manage both present and future social behaviours across physical and virtual/electronic worlds. In an effort to acknowledge the need to move beyond spatial dualism, this paper will examine the use of neighbourhood Facebook and Whatsapp groups to understand the ways in which socio-technical assemblages of the human and non-human construct contemporary forms of ‘neighbourliness’. Specifically, the disjuncture between greater housing density and the seemingly decreasing levels of involvement in estate-based collectives and in day-to-day interaction should be understood in the expanding, and not retracting, of spaces of interaction.

Nurul Amillin Hussain is a DPhil Candidate at the School of Geography and the Environment, in the University of Oxford. Her project explores ideas around sustainability within the ‘smart city’, focusing on the dense, urban city-state of Singapore. She holds an MPhil in Social Anthropology from the University of Cambridge and a BA in Sociology from the Nanyang Technological University. Amillin worked as a sustainability consultant, working with clients in the maritime and palm-oil agribusiness industries, prior to coming to Oxford.

Crypto-Futurism: Waiting for the Good Companion

Tomas Čiučelis, *University of Dundee*

Today our understanding of future is coextensive with technological development. This identity between technology and future is based on two important qualities common to these two notions: change and unknowability. On the one hand, technology brings changes with the relentless force and speed of natural events. On the other hand, both future and technology imply something beyond human knowledge: because technologies are becoming less comprehensible, they also become the source of the unknown, just like the future is.

The paper will think through the following consequences of this identity between future and technology:

1. Technology starts functioning as future itself. Today the unpredictable dimension of the ‘to-come’ is expressed technologically through the incomprehensibility of the infinitely complex technologies.
2. Our thinking of the future is becoming a form of crypto-futurism. Future is ‘cryptic’ in two senses: *kryptos* as ‘hidden’; and ‘encrypted’ as in having a technological nature, involving a cipher, or a code. Thus we expect future to arrive from the technological ‘black box’ or a ‘crypt’.
3. We expect technology to arrive as a ‘good companion’—i.e., something that will liberate us from work and allow us to enjoy being humans. However technologies rather exist in relation to humans, and, upon their arrival, they change us.

4. Our current mode of relation with technology is based either on production or consumption. The paper will claim that this mode of relation restricts our capacity to remain open to the 'to-come' and enjoy our 'good companions'.

Tomas Čiučelis is a Scotland-based philosophy researcher, translator, and an Associate Member of the Scottish Centre for Continental Philosophy. Graduated in Media Art (BA) from Vilnius Academy of Arts, and in Continental Philosophy (MLitt) from University of Dundee. Research interests revolve around philosophy of technology, philosophy of language, and media theory. Currently developing the PhD thesis on the notion of hypokrisis and the survival of critical reason in the conditions of technological change. Translated books include Lev Manovich's *The Language of New Media* and Noam Chomsky's *Hegemony or Survival*.



Conference Organisers

Chelsea Haith

Doctoral Researcher

Chelsea Haith is the founder of Futures Thinking and a DPhil candidate in the Faculty of English at the University of Oxford, working on speculative fictions, dystopia, and urban geopolitics. She is a Mandela Rhodes scholar and completed her undergraduate degrees in French, Literature, and Journalism at the University Currently Known as Rhodes/UCKARhodes, and Gender Studies at the University of Cape Town in South Africa. She has an MA in Culture and Thought After 1945 from the University of York, and has worked across disciplines throughout her career, publishing on children's literature, African street literature, neo-Burlesque performance, and contemporary Black British writing. She spent some time in Cape Town's publishing industry and worked as a freelance journalist before moving to the UK. She is also the Research & Development Manager at the social enterprise Uncomfortable Oxford, whilst indulging her myriad research interests which include refugee literature, urban studies, feminisms, speculative fictions, and future studies.

Dan Holloway

Head of Administration at the Faculty of Linguistics, Philology and Phonetics; CEO of Rogue Interrobang Ltd

Dan Holloway studied Theology and Philosophy at Christ Church, before doing a Masters and four years of a DPhil at Linacre, studying subjectivity and taxonomy in early modern thought (in particular Puritans and Ramism). He has been a campaigner and speaker on debt and mental health, working among others with the Royal College of Psychiatrists, the Financial Conduct Authority, Mind, and the Money and Mental Health Policy Institute. In 2018 he was shortlisted in two categories for the inaugural Vice Chancellor's Diversity Awards for his work on mental health within the University and in 2017 he won the Humanities Innovation Challenge for the creative thinking card game Mycelium, and as a result recently became Oxford University's second lean spinout with the company Rogue Interrobang, which helps organizations use creativity to find solutions to wicked problems.

Dan's interests in Futures Thinking combines all these elements in understanding and seeking to solve the issue of the erasure of disabled people within the policies and visions of the environmental movement. His interest focuses in particular on the interplay of the concepts of holiness (the use of performative indicators of select status), utopia (framing a vision of an ideal future not by what is included but what is excluded), and disgust (excluding from one's thinking those people, characteristics or behaviours that remind one of one's fragility).

Christopher Burr

Postdoctoral Researcher in the Oxford Internet Institute

Chris Burr is a philosopher of cognitive science. His research explores how digital technologies have reshaped our understanding of wellbeing and the new opportunities and risks that these technologies pose for human flourishing. He has held previous posts at the University of Bristol, where he explored the ethical and epistemological impact of big data and artificial intelligence and completed his PhD in 2017. His research interests include Philosophy of Cognitive Science and Artificial Intelligence, Ethics of Digital Technology and A.I., Decision Theory, and Philosophy of Mind.

Ilan Price

Doctoral Researcher

Ilan Price is a mathematics doctoral student at the Oxford Mathematical Institute and the Alan Turing Institute. His technical research focusses on mathematical theory for understanding the expressivity and robustness of deep neural networks. He is also a co-director of the Rhodes Artificial Intelligence Lab, which puts together interdisciplinary teams to take on projects centred on machine learning and AI for social good. Outside of the technical realm of the exciting prospects for machine learning, he is interested in how to combat the risks of a dangerous and/or exclusionary trajectory for these technologies.

Futures Thinking Committee Members

Anne Ploin
Chelsea Haith
Prof Christina de Bellaigue
Dr Christopher Burr
Dan Holloway
Ilan Price
Madeleine Chalmers
Prof Robert Iliffe

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