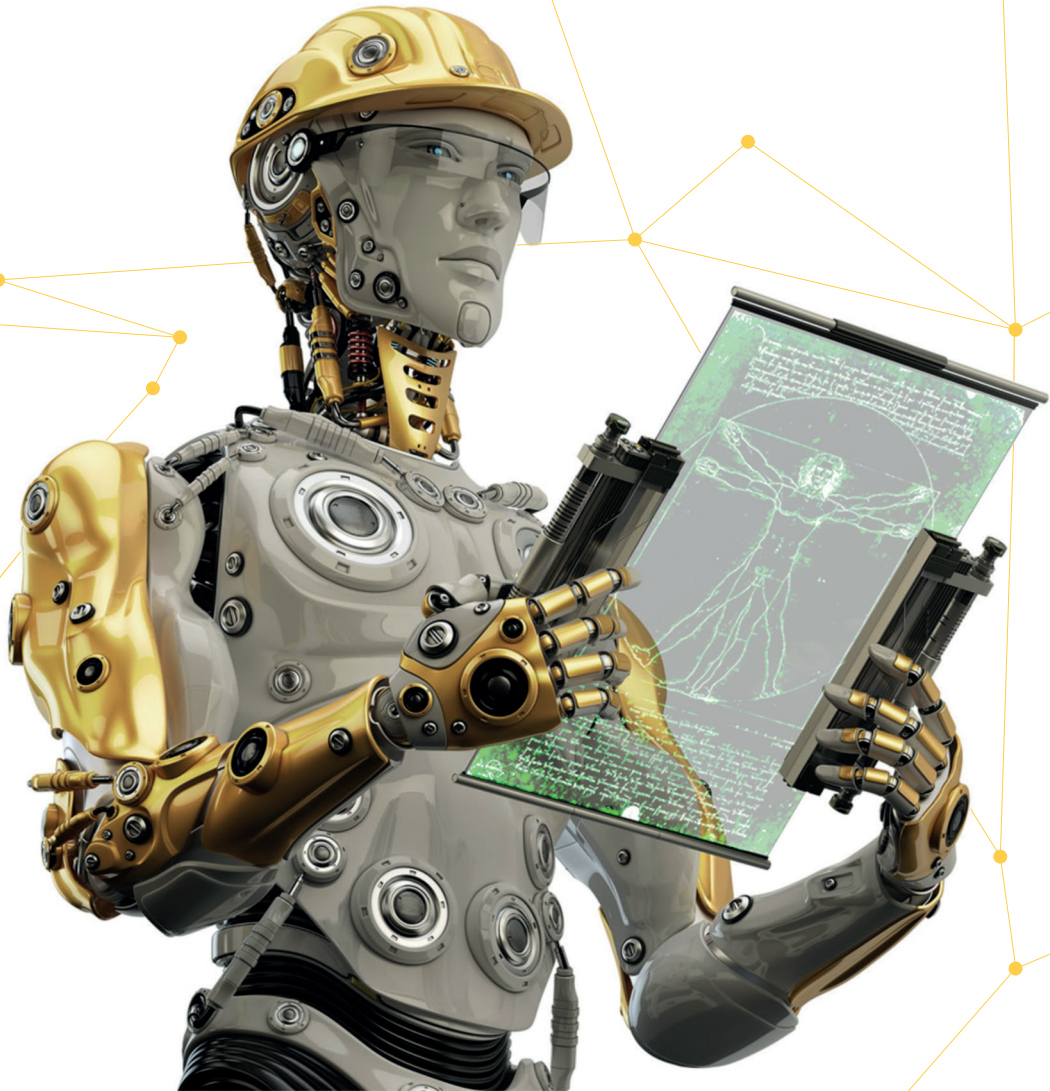FEBRUARY 14-17
UNIVERSITY OF VIENNA

ENVISIONING ROBOTS IN SOCIETY

ROBOPHILOSOPHY 2018
TRANSOR 2018

AARHUS UNIVERSITY

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WELCOME BY THE CONFERENCE ORGANIZERS

Dear participants of ROBOPHILOSOPHY 2018/TRANSOR 2018 – *Envisioning Robots in Society. Politics, Power, and Public Space*,

We, the research group Philosophy of Technology and Media, are delighted to give a warm welcome to you here at the University of Vienna, where we host the third event in the biennial RO-BOPHILOSOPHY conferences series. Six years ago this conference series was brought to life by what is now the "Research Unit for Robophilosophy" at Aarhus University that in 2014 defined the notion of "robophilosophy" as a new area of experimental interdisciplinary philosophy and managed to establish a successful biennial conference series in Robophilosophy, scheduled to run into the 2020s. After the first two events in this series took place in Aarhus in 2014 and 2016, we are now very excited to invite researchers from all over the world to Vienna and discuss the various challenges we are confronted with during what some might call the "robot revolution".

This year, the Robophilosophy conference *Envisioning Robots in Society – Politics, Power, and Public Space* prominently focuses on societal, economic, and political issues related to social robotics, including the organization of work and labor, policy, education, economics, law, medicine and care, and the arts. Within all of these social and political spheres software bots and robots appear in ever more intelligent, connectable, and extensive ways, producing artificial agents that function in ever more complex physical and social surroundings and transform the practices and organizations in which they are embedded. This raises a host of questions for policy-makers, engineers, and researchers such as: Which socio-political, socio-cultural, economic, and ethical challenges will we humans be confronted with as robots are included into a growing number of contexts of everyday life? How can philosophy and other disciplines contribute to asking these questions and addressing these challenges? It is also a signal for researchers, policy makers, engineers, and corporations to (pro)actively engage with these issues and realize that they jointly share the burden of responsibility for shaping the course of the "robot revolution".

We would like to thank all those who made this conference possible, who supported us on the way and who are also present during these days here in Vienna.

First and foremost, we want to thank you, the speakers and participants of this conference! We thank in particular our keynote speakers: Oliver Bendel, Joanna Bryson, Raja Chatila, Juha Heikkilä, Hiroshi Ishiguro, Catelijne Muller, Simon Penny, Guy Standing, Robert Trappl, and Josef Weidenholzer for giving this event special attention among their many engagements, as well as Sabine Köszegi, the speaker of our Welcome Address at the Town Hall.

Our special thanks goes to the co-organizers from Aarhus University (AU), Johanna Seibt and Marco Nørskov, who invited us to organize this third event in the Robophilosophy conference series in the format of a trans-university team effort, provided us with valuable knowledge and structures of the previous events in the Robophilosophy conference series, and, together with Søren Schack Andersen (AU) supported us by taking care of many background tasks of scientific and practical organization. We are also very grateful to our excellent team of reviewers, who helped us to ensure and maintain the high academic quality of the event. Since we received an unexpectedly high number of submissions, difficult decisions had to be made and we would like to thank especially the authors of those papers we could not include this time round for their interest in the event.

Particular acknowledgement and praise is due to all those who carried the main burden of the practical organization and realization of the conference. We warmly thank our organizational as-

sistants, Agnes Buchberger and Caroline Krecké, who managed to keep an overview of everything that is needed for the organization of such an event, and without whom we would have drowned long ago in unanswered emails and overseen requests. We also thank Søren Schack Andersen for editing the conference webpage with great efficiency and circumspection, as well as members of the AU event organization staff, Nikolai Lander, Ib Jensen, and Gitte Grønning Munk for graphic design and administrative support. Finally, we don't want to forget the often "invisible hands" of the student assistants, Karoline Paier and her team: Simon Popp, Jesse De Pagter, Maximilian Hohlweg, Eva-Maria Kehrer, Flora Löffelmann, and Lena Starkl, who keep an eye on many matters during these busy days of the conference.

The conference was made possible by the financial support of the *Carlsberg Foundation*, the Austrian *Federal Ministry for Transport, Innovation and Technology*, and the *Danish Council for Independent Research*.

We also wish to thank our institutions, the two universities, faculties, and philosophy departments involved for providing the frameworks and freedoms necessary for the scientific and administrative organization of the conference. We also thank the City of Vienna for hosting a formal reception at Town Hall. With the organization of this conference here in Vienna we aim to present philosophical and interdisciplinary humanities research in and on social robotics that can inform and engage with policy making and political agendas – critically and constructively. We wish to investigate how academia and the private sector can work hand in hand to assess benefits and risks of future production formats and employment conditions. We would also like to explore how research in the humanities, including art and art research, and in the social and human sciences, can contribute to imagining and envisioning the potentials of future social interactions in the public space. We hope that this conference will open up more room for discussion and exchange regarding the introduction of robots in our societies in a variety of contexts.

We are so excited to have you here in Vienna and we wish you a productive conference and pleasant stay. There's a lot of interesting work and exchanges lying ahead of us. Let's get started!

Mark Coeckelbergh, Janina Loh, and Michael Funk

OVERVIEW OVER CONFERENCE PROGRAM

WEDNESDAY MORNING FEBRUARY 14

	Politics and Concepts (Rooms I and II)		Power and Ethics (Room III)	Public Space and Society (Room IV)
09.00-12.00	Workshop 1: Transdisciplinary Reflections on Social Robotics in Academia and Beyond Room I UC, Hörsaal C 1 --- Erich Prem: Strategic components for social robotics research Johanna Seibt, Christina :Vestergård, and Malene Flensborg Damholdt: Integrative Social Robotics, Transdisciplinarity, and Value-Driven Design	Workshop 2: Machines without Humans // Post-robotics Room II UC, Hörsaal C 2 --- Luisa Damiano: Robots as social partners for humans Simon Hoher and Florian Jaensch: Self-learning material flow systems Simone Kimpeler: Future Session Maike Klein and Maximilian Lehner: Aesthetic Preferences of Machines Fabian Kuhfuß: Nintendogs Femke Snelting: Possible Bodies	Session 1: Robots, War, and Politics Room III UC, Aula	Session 2: Artificial Sociality I Room IV UC, Seminarraum III
			Brian Bloomfield and Theodore Vurdubakis: The Machine at War (9.00-9.30)	Anna Strasser: Artificial agents in the realm of social cognition (9.00-9.30)
			Joanna Wilson: Lethal Autonomous Weapons Systems (9.30-10.00)	Maciej Musiał: Automation, the meaning of life and intimate relationships (9.30-10.00)
			Niklas Toivakainen: Capitalism, Labour and the Totalising Drive of Technology (10.00-10.30)	Aurélie Clodic et al.: On the pertinence of Social Practices for Social Robotics (10.00-10.30)
			Florian Saurwein: Politics of automation (10.30-11.00)	Pak-Hang Wong: Ritualizing Robots (10.30-11.00)
			Matthijs Maas: Lessons from nuclear arms control for the responsible governance of AI development (11.00-11.30)	
			Morten Dige: The Pragmatics of Robotic Warfare (11.30-12.00)	

WEDNESDAY AFTERNOON FEBRUARY 14

11.30-12.30	Reception, Registration			
12.30-13.00	**Welcome** – by Mark Coeckelbergh and the Organizers Room I UC, Hörsaal C 1			
13.00-14.15	**Keynote I: Guy Standing** The Precariat in Platform Capitalism Room I UC, Hörsaal C 1			
14.15-14.30	Short Break			
	Politics and Concepts (Rooms I and II)		Power and Ethics (Room III)	Public Space and Society (Room IV)
14.30-16.00	Session 3: Robots, Cognition, and Artificial Consciousness Room I UC, Hörsaal C 1	Workshop 3: Working With and Alongside Robots: Forms and Modes of Co-Working – Part 1 Room II UC, Hörsaal C 2 --- Anika Fiebich: Three Dimensions in Human-Robot Cooperation	Session 4: Roboethics I Room III UC, Aula	Session 5: Artificial Sociality II Room IV UC, Seminarraum III
	Aura-Elena Schussler: Robot Clones (14.30-15.00)		Frodo Podschwadek: Respect for Simulated Persons (14.30-15.00)	Catrin Misselhorn and Wulf Loh: Autonomous Driving and Perverse Incentives (14.30-15.00)
	Stacey Vorster: Recognition, encounter, and vision, in the work of Zhou Song (15.00-15.30)	Johanna Seibt: Classifying Forms of Collaborations in the OASIS framework	Hiroya Shimoyama: Deconstruction of Roboethics through the Concept "Robomot" (15.00-15.30)	Rikke Nørgård, Niamh Ní Bhroin, and Charles Ess: Robot Teachers (15.00-15.30)
	Fabio Fossa: Purpose-built Artefacts or Special-purpose Human Beings? (15.30-16.00)	Luis de Miranda: Cosmic Anthrobots	Raul Hakli and Pekka Mäkelä: Bad Arguments for Responsibility Sharing (15.30-16.00)	Virginia Sanchini et al.: Humanoid robot for children with type-1 diabetes (15.30-16.00)
14.15-14.30	Short Break			
16.30-18.30	Workshop 4: Phronēsis and Computation: Current Perspectives Room I UC, Hörsaal C 1 --- Vincent C. Müller: Real Machine Ethics	Workshop 3: Working With and Alongside Robots: Forms and Modes of Co-Working – Part 2 Room II UC, Hörsaal C 2 --- Diego Compagna: Sociological Remarks on Repetition and Variation in Human-Robot Cooperation	Session 6: Roboethics II Room III UC, Aula	Session 7: Public Perceptions and Constructions of Robots Room IV UC, Seminarraum III
	Anne Gerdes: The Role of Time in Phronetic Activities		Edward Spence: The Moral Life of Androids (16.30-17.00)	Jean-Paul Peronard, Christian Lystbæk, and Sladjana Nørskov: The Valorisation of Robots in Robotics Research (16.30-17.00)
	Selmer Bringsjord, Paul Bello, Naveen Sundar Govindarajulu, Bertram F. Malle, and Matthias Scheutz: Making Morally Competent Robots Meets Artificial Phronēsis	Hendrik-Jan Grievink: <Hello Womb/>	Bertram F. Malle: From Binary Deontics to Deontic Continua (17.00-17.30)	Rosanna Termino and Eva Rimbau-Gilabert: The digitalization of the working environment (17.00-17.30)
			Massimiliano Cappuccio: Virtuous social robots, value creation, and social recognition theory (17.30-18.00)	Sophie Wennerscheid: New Networks of Desire (17.30-18.00)
	John Sullins: Artificial Phronēsis, What it is and What it is Not		Norbert Krüger, Leon Bodenhagen, and William Juel: Robots for elderly care institutions (18.00-18.30)	Kerstin Fischer: Why Collaborative Robots Must Be Social Actors (18.00-18.30)
19.00-19.30	Reception at the Town Hall Formal Welcome by Sabine Köszegi (ca. 10min.) and get together for organizers and participants			

THURSDAY MORNING
FEBRUARY 15

08.45-10.00	**Keynote II: Oliver Bendel** Service Robots from an Ethical Point of View Room I UC, Hörsaal C 1		
10.00-10.30	Coffee Break		

	Politics and Concepts (Rooms I and II)		Power and Ethics (Room III)	Public Space and Society (Room IV)
10.30-12.00	Workshop 5: Political Economy of Robots (Panel Discussion) Room I UC, Hörsaal C 1 --- David Gunkel: Digital Divide 2.0, or the Robot Rift Zachery J. McDowell: The Remixed Self as/and Robot Alfie Brown: LeftTech Peter Rantaša: Artificial Property James A. Smith: On the Genealogy of Morals of Robots	Workshop 6: The Use of Telenoids and Social Robots in Key Business Activities (Panel Discussion) Room II UC, Hörsaal C 2 --- Michael Filzmoser and Sabine Koeszegi: Automation and Digitalization of Business Processes John P. Ulhøi and Sladjana Nørskov: Social Robotics Lars Haahr and Anna B. Holm: Chatbots in Human Resource Management	Workshop 7: Is Machine Consciousness Necessary for True AI Ethics? (Panel Discussion) Room III UC, Aula --- Joanna Joy Bryson: Consciousness is Neither Necessary nor Sufficient for AI Ethics Antonio Chella: AMA and the capability of conscious choices John Murray: Exploring Emergent Ethics in Multi-Agent Systems	Workshop 8: Exploring Ethical Responsibility through Democratic Participation and Expert Panel Discussion – Part 1 Room IV UC, Seminarraum III --- Cathrine Hasse: Mini-Publics Ben Vermeulen: Robotization and structural economic dynamics
12.00-13.00	Lunch			

THURSDAY AFTERNOON FEBRUARY 15

13.00-14.15	**Keynote III: Hiroshi Ishiguro** Studies on Interactive Robots Room I UC, Hörsaal C 1
14.15-14.30	Short Break

	Politics and Concepts (Rooms I and II)		Power and Ethics (Room III)	Public Space and Society (Room IV)
14.30-15.30	Workshop 9: Yumi in Action! Ethics and Engineering as Transdisciplinary Robots Performance Room I UC, Hörsaal C 1 --- Bernhard Dieber: The challenges and perspectives of human-robot collaboration Michael Funk: Responsibility, Risk and Security as Transdisciplinary Challenges in Robot Ethics	Workshop 10: Cultural Spaces, Humanoid Robotics and Human Work; Performance and Debate Room II UC, Hörsaal C 2 --- Oliver Schürer: Cultural Spaces, Humanoid Robotics and Human Work; Performance and Debate Christoph Hubatschke: 'Konfidenz' in Robot Companions? Martina Mara: Between empathy and fright	Workshop 11: Moral Status of Robots Room III UC, Aula --- Mark Coeckelbergh Can and Should Robots have Rights? John Danaher: Procreative Beneficence and the Moral Status of Robots Anne Gerdes: Robots – Rights and Wrongs David Gunkel: Can and Should Robots Have Rights?	Workshop 8: Exploring Ethical Responsibility through Democratic Participation and Expert Panel Discussion – Part 2 Room IV UC, Seminarraum III --- Karoline Zawieska: Collaborative Learning for Ethical Robot Design Niels Christian Mossfeldt Nickelsen: Human-Robot proximity
15.30-16.30	Poster Session Foyer to C2, Level -1 --- Budi Hartanto: Instrumental Aspects of Social Robots Paulius Astromskis: Regulation Model of Electronic Persons Rebekka Soma and Vegard Søyseth: Robot Deployment and Task Redistributions Peter Rantaša: The Solvation of the Robot or The Voice of Echo Zhou Song: Artwork Installation			

16.30-17.00	Coffee Break
17.00-18.15	**Keynote IV: Simon Penny** What Robots Still Can't Do Room I UC, Hörsaal C 1
19.00-	Conference Dinner

FRIDAY MORNING
FEBRUARY 16

08.45-10.00	**Keynote V: Raja Chatila** Ethics in Action - Considerations on Autonomous and Intelligent Systems Room I UC, Hörsaal C 1		
10.00-10.30	Coffee Break		

	Politics and Concepts (Rooms I and II)		Power and Ethics (Room III)	Public Space and Society (Room IV)
10.30-12.00	**Session 8:** **Social Change** Room I UC, Hörsaal C 1	Workshop 12: Robotics in Japan: Local, Global and "Global" Influences and Application – Part 1 Room II UC, Hörsaal C 2 --- Hironori Matsuzaki: Military Robot Applications beyond Post-War Pacifist Norms?	**Session 9:** **Machine Ethics I** Room III UC, Aula	**Session 10:** **Artificial Sociality III** Room IV UC, Seminarraum III
	Biljana Biba Vicković et al.: Dragon Robot (10.30-11.00)		Martim Brandao: Moral diversity and equality of opportunity for algorithms in autonomous vehicles (10.30-11.00)	Wessel Reijers: Robots: in between labour and practice (10.30-11.00)
	Jaana Parviainen and Tuomo Särkikoski: Growing Old in Robotic Cities (11.00-11.30)	Marco Nørskov and Anemone Platz: Android Robotics and the Conceptualization of Human Beings	Arto Laitinen: What principles for moral machines? (11.00-11.30)	Philip Brey: Should Robots be Equipped with Emotions? (11.00-11.30)
	Glenda Hannibal and Søren Schack Andersen: Acknowledgement of Workers in a Robot-Supported Society (11.30-12.00)	Jennifer Robertson: Hegemonic Bipedalism	Vanessa Schäffner: Caught Up in Ethical Dilemmas (11.30-12.00)	Rebekka Soma and Jo Herstad: Turning away from an anthropocentric view on roboics (11.30-12.00)
12.00-13.00	Lunch			

FRIDAY AFTERNOON FEBRUARY 16

13.00-14.15	**Keynote VI: Josef Weidenholzer** Robotics: Opportunity or threat to Europe's future? Room I UC, Hörsaal C 1
14.15-14.30	Short Break

	Politics and Concepts (Rooms I and II)		Power and Ethics (Room III)	Public Space and Society (Room IV)
14.30-16.30	Workshop 13: Exploring Responsible Robotics Hands-On: A Conference Lab on Three Use Cases (SMOOTH Project) Room I UC, Hörsaal C 1 --- Astrid Weiss: Laundry and Garbage Collection Johann Lehrner: Neuropsychology of Dementia and robots Majken Kirkegaard Rasmussen: The Shape of Robots Raffaele Rodogno: The Ethics of Guidance Robots	Workshop 12: Robotics in Japan: Local, Global and "Global" Influences and Application – Part 2 Room II UC, Hörsaal C 2 --- Junko Teruyama: Technology for Communication Cosima Wagner: "Vision Assessment" of Robot Technology Futures in Japan	**Session 11:** **Machine Ethics II** Room III UC, Aula Leonard Van Roempaey: Incompatibilities between cognitive law and autonomous systems (14.30-15.00) Michal Klincewicz and Lily Frank: Making Metaethics Work for AI (15.00-15.30) Virginia Dignum et al.: Design for Values for Social Robot Architectures (15.30-16.00) Satomi Sugiyama: Exploration of expected interaction norms with a social robot in everday life (16.00-16.30)	Workshop 14: Self-Driving Fast Towards Us – Social and Ethical Implications of Autonomous Vehicles Room IV UC, Seminarraum III --- Kenworthey Bilz: Unintended consequences of autonomous vehicles Barbara Lenz: Influences of automated driving on individuals' spatial and temporal behavior Virginia Dignum: Accountability, Responsibility, Transparency Filippo Santoni de Sio: Meaningful Human Control over Automated Driving Systems Bertram F. Malle: Do Autonomous Vehicles Need Moral Competence?

16.30-17.00	Coffee Break
17.00-17.30	**Keynote VII: Juha Heikkilä** The EU perspective on Robotics & AI: economic, societal, research and policy aspects Room I UC, Hörsaal C 1
17.30-18.00	**Keynote VIII: Catelijne Muller** 3 Challenges of AI for Society (and How (not) to Address Them) Room I UC, Hörsaal C 1
18.00-18.30	**Discussion** Room I UC, Hörsaal C 1

SATURDAY
FEBRUARY 17

08.45-10.00	**Keynote IX: Joanna Bryson** The Moral, Legal, and Economic Hazard of Anthropomorphising Robots and AI Room I UC, Hörsaal C 1
10.00-10.30	Coffee Break
10.30-11.45	**Keynote X: Robert Trappl** Robot Deus Room I UC, Hörsaal C 1
11.45-12.00	Conference Closing & Outlook

KEYNOTES

GUY STANDING

Name	Guy Standing, Professorial Research Associate and Fellow of the British Academy of Social Sciences
Affiliation	School of Oriental and African Studies, University of London, UK
Title	**The Precariat in Platform Capitalism**
Session	Keynote I
Time and location	Wednesday, February 14, 13.00-14.15, Room I UC, Hörsaal C 1

Abstract

The combination of globalisation, neo-liberal economic policies and an ongoing technological revolution is generating a global labour market and producing a global class structure in which the precariat is the growing mass class. After defining the precariat, this presentation will consider how app-driven platform capitalism, and the growing use of AI and more sophisticated robots, is dragging millions more into the precariat through three distinctive forms of labour relation. These may be called, first, the concierge economy, second, cloud labour, and third, zero-hour or on-call employment. Each are facing growing economic and social insecurity, but in different ways, and each will be affected by the advance of robotization, including a new phenomenon, *heteromation*.

The presentation will argue that the platform corporations are essentially labour brokers, or rentiers, and that their business practices are transforming labour and work, while accentuating income inequality and pervasive economic insecurity. It will conclude with some policy recommendations that have yet to be presented by politicians of either right or left.

About the speaker

Guy Standing is Professorial Research Associate at the School of Oriental and African Studies, University of London. He is a Fellow of the British Academy of Social Sciences and co-founder and now honorary co-president of the Basic Income Earth Network (BIEN), an international NGO that promotes basic income.

He was previously Professor of Development Studies in SOAS, Professor of Economic Security, University of Bath, Professor of Labour Economics, Monash University, and Director of the ILO's Socio-Economic Security Programme. He has been a consultant for many international bodies, including UNICEF, UNDP, the European Commission and the World Bank, has worked with SEWA in India for many years, and was Director of Research for President Mandela's Labour Market Policy Commission.

His recent books include *The Precariat: The New Dangerous Class* (2011), which has been translated into 19 languages; *A Precariat Charter* (2014); with others, *Basic Income – A Transformative Policy for India*, and *The Corruption of Capitalism: Why Rentiers Thrive and Work Does Not Pay* (2016). His latest book is *Basic Income: And how we can make it happen* (Pelican, Penguin, 2017).

OLIVER BENDEL

Name	Oliver Bendel, Professor
Affiliation	School of Business FHNW, Switzerland
Title	**Service Robots from an Ethical Point of View**
Session	Keynote II
Time and location	Thursday, February 15, 08.45-10.00, Room I UC, Hörsaal C 1

Abstract

Service robots are spreading more and more. They are in our apartments, in hotels, hospitals and care homes, in shopping malls and on company premises, they conquer the streets and squares of our cities. In doing so, various challenges arise. The service robots need energy, they take our place, we collide with them and stumble over them, they monitor and control us, they communicate with us and elicit our secrets. They can be hacked, kidnapped and abused. In the first part of the lecture, Oliver Bendel presents several types of service robots like security, transport, therapy and care robots and discusses moral implications that arise in their context. He takes the perspectives of both information ethics and machine ethics. In the second part, he discusses the draft of a patient decree, with which patients can determine whether and how they want to be treated and cared for by a robot. However, the specifications may violate personal interests or the business interests of the hospital or nursing home. Oliver Bendel explains why he still believes in such a patient decree.

About the speaker

Oliver Bendel was born in 1968 in Ulm. After completing his degree in philosophy and German philology as well as in information science at the University of Constance, and after his first professional experiences he did his doctorate in information systems at the University of St. Gallen. Bendel has been working in Germany and in Switzerland as a project manager for new media and as a supervisor of the engineering and science departments of several universities. Today he lives in Switzerland working as a freelance writer and as professor at the School of Business FHNW. Since 1998 he wrote about 250 scientific contributions, including diverse books such as "Die Rache der Nerds" (UVK, 2012) with reflections and storys in regard to information ethics, "300 Keywords Informationsethik" (Springer Gabler, 2016) about information ethics and machine ethics as well as "Die Moral in der Maschine" (Heise Medien, 2016) about moral machines.

HIROSHI ISHIGURO

Name

Hiroshi Ishiguro, Professor

Affiliation

Department of Systems Innovation in the Graduate School of Engineering Science, Osaka University, Japan

Title

Studies on Interactive Robots

Session

Keynote III

Time and location

Thursday, February 15, 13.00-14.15, Room I UC, Hörsaal C 1

Abstract

Robotics used to divide into two main fields: Navigation and Manipulation.

These fields study and develop only those robots that are optimized for the use in factories. Ishiguro, with researchers in other countries, has built a new field, Interaction. He started studying human-robot interaction and developed a humanoid interactive robot designed for ordinary use Further-more, he is the first in the world to design and develop realistic humanlike robots called androids.

In this talk, he will introduce interactive and communicative personal robots and androids and discuss the technologies and scientific issues.

Especially, he will discuss on intention/desire, experiences, emotion and consciousness of the robots and androids.

About the speaker

Hiroshi Ishiguro (M') received a D.Eng. in systems engineering from the Osaka University, Japan in 1991. He is currently Professor of Department of Systems Innovation in the Graduate School of Engineering Science at Osaka University (2009-) and Distinguished Professor of Osaka University (2017-). He is also visiting Director (2014-) (group leader: 2002-2013) of Hiroshi Ishiguro Laboratories at the Advanced Telecommunications Research Institute and an ATR fellow. His research interests include distributed sensor systems, interactive robotics, and android science. He has published more than 300 papers in major journals and conferences, such as Robotics Research and IEEE PAMI. On the other hand, he has developed many humanoids and androids, called Robovie, Repliee, Geminoid, Telenoid, and Elfoid. These robots have been reported many times by major media, such as Discovery channel, NHK, and BBC. He has also received the best humanoid award four times in RoboCup.

SIMON PENNY
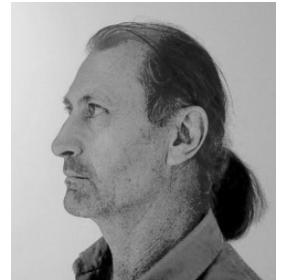
Name	Simon Penny, Professor
Affiliation	Art and Informatics, University of California, Irvine, USA
Title	**What Robots Still Can't Do**
Session	Keynote IV
Time and location	Thursday, February 15, 17.00-18.15, Room I UC, Hörsaal C 1

Abstract

Drawing on the work of Hubert Dreyfus, Philip Agre, Daniel Dennett and other thinkers, this presentation considers some of the assumptions, or presumptions, which undergird some of the discourses in the field of social robotics, and questions of ethics with respect to technology. References and examples are drawn from popular culture and the history of technology. Observations are made regarding some continuities throughout the history of Artificial Intelligence. Questions of sociality and social commitment are explored from the perspective of embodied, enactive and situated cognition. The network perspective is considered, in terms of the place of robots within an extended technological network and within an 'actor network' including humans, and other actors.

About the speaker

Professor of Art and Informatics, University of California, Irvine. Trained in sculpture, Penny extended his practice at the intersection of culture and technology as a maker, technical developer, teacher and theorist, first publishing in the area in 1987. As Professor of Art and Robotics at Carnegie Mellon, 1993-2000, he engaged robotics, VR and AI, and went on to found the Arts Computation Engineering (ACE) graduate program at UCI, 2001-2011. His longstanding concern for embodied and situated aspects of practice has led to a focus on what he refers to as *postcogntivist* approaches to cognition – the focus of his book Making Sense: Cognition, Computing, Art and Embodiment (MIT press 2017). He was director of A Body of Knowledge: Embodied Cognition and the Arts conference UCI 2016. He was Labex International Professor, Paris8 and ENSAD 2014; and visiting professor, Cognitive Systems and Interactive Media masters, University Pompeu Fabra Barcelona, 2006-2013. He is currently building an experimental ocean-going sailcraft based on Micronesian voyaging canoe designs. simonpenny.net

RAJA CHATILA

Name	Raja Chatila, Professor
Affiliation	Institut des Systèmes Intelligents et de Robotique, Sorbonne Université, France
Title	**Ethics in Action – Considerations on Autonomous and Intelligent Systems**
Session	Keynote V
Time and location	Friday, February 16, 08.45-10.00, Room I UC, Hörsaal C 1

Abstract

Ethical, legal and societal issues (ELS) raised by the development of intelligent, and autonomous systems have gained increasing interest both in the general public and in the involved scientific communities.

The development of applications often based on opaque deep learning programs that are prone to bias, the wide exploitation of personal data, growing automation, or applications and use cases such as personal robots, autonomous cars or autonomous weapons, are feeding a wide debate on multiple issues such as: the future of employment, privacy and intimacy protection, autonomous decision-making, moral responsibility and legal liability of robots, imitation of living beings and humans, the status of robots in society, affective relationship with robots, human augmentation, etc. The question in developing autonomous and intelligent system technologies, which might have an unprecedented impact on our society, is finally about how to make them aligned with fundamental human values, and targeted towards increasing the wellbeing of humanity.

From the perspective of the designers of such systems, two main issues are central. Firstly, research methodologies and design processes themselves: how to define and adopt an ethical and responsible methodology for developing these technological systems so that they are transparent, explainable and so that they comply with human values? This involves several aspects that transform product lifecycle management approaches. Secondly, when decisions are delegated to so-called autonomous systems, is it possible to embed ethical reasoning in their decision-making processes? These issues will be overviewed in the talk, inspired by the ongoing reflection and work within the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems.

About the speaker

Raja Chatila, IEEE Fellow, is Professor at Sorbonne Université (Campus Pierre & Marie Curie) in Paris and Director of the Institute of Intelligent Systems and Robotics (ISIR), as well as of the SMART laboratory of excellence on human-machine interactions. He has served as President of the IEEE Robotics and Automation Society in 2014-2015. His research focus is on intelligent and autonomous robotics and he is author of over 150 publications in the domain. He is a member of the French Commission on the Ethics of Research on Digital Science and Technology (CERNA), and chair of the IEEE Global Initiative on Ethics of Autonomous and Intelligence Systems.

JOSEF WEIDENHOLZER

Name	Josef Weidenholzer
Affiliation	Member of the European Parlament (MEP)
Title	**Robotics: Opportunity or threat to Europe's future?**
Session	Keynote VI
Time and location	Friday, February 16, 13.00-14.15, Room I UC, Hörsaal C 1

Abstract

We are experiencing an almost inflationary proliferation of robots. While the first generation of machines has been used primarily as a tool for heavy work in industry, the next level of robots is designed to interact with people. 1.7 million decision-making machines that can communicate with each other are active already. That amounts the population of Vienna. The use of robots raises a number of ethical and sociopolitical issues.

For the majority of Europeans, the idea of robotization creates fear of losing their job. Actually, any job from assembly line work to computerized information processing, could be affected. New markets in the service sector can absorb some lost jobs in the industry, but not all jobs will be compensated. Therefore, training in companies will be an important issue. As a society, we have to ask ourselves if the 40-hour week working time standards is still appropriate? Progress can't be stopped, but we can and have to control the development of systems, not vice versa, technically and politically. We need civil law rules for robotics. This requires global standardisation. The European Union must act together so that future global standards follow European guidelines.

About the speaker

Since 2011, Josef Weidenholzer is member of the European Parliament (MEP) and since 2015, he is vice-president of the Group of the Progressive Alliance of Socialists and Democrats in the European Parliament. In his role as MEP, he is known for his social engagement in the areas of human rights, fundamental rights and consumer protection. When it comes to digital matters he works along the lines of "Better not get overrun by the future". He actively works on the framework for a digital society and the digital internal market. Recently, his focus lay on the legal aspects of automation and net neutrality. Besides, he focusses on hate speech and fake news, as well as on data protection in terms of data exchange with the United States and in the area of big data.

JUHA HEIKKILÄ

Name	Juha Heikkilä, Dr
Affiliation	Directorate-General for Communications Networks, Content and Technology; European Commission
Title	**The EU perspective on Robotics & AI: economic, societal, research and policy aspects**
Session	Keynote VII
Time and location	Friday, February 16, 17.00-17.30, Room I UC, Hörsaal C 1

Abstract

The keynote will address aspects of the European Commission activity in the field, with a mainly non-technological focus. It outlines the overall rationale for EU action in the field and its objectives, giving background to the research and innovation funding to the area and highlighting the economic, societal and policy perspective. This will be done with reference to Europe's position in the international context. The presentation will also take up aspects of the Commission's current thinking and the future outlook of AI.

About the speaker

Dr Juha Heikkilä joined the European Commission in 1998 and currently works in its Directorate-General for Communications Networks, Content and Technology. Since 2014, he has been the Head of its Robotics and Artificial Intelligence unit. The Commission has been funding a multidisciplinary research programme on Cognitive Systems, Robotics and AI for 13 years, focusing on smart and flexible robots and artificial systems. In recent years, the annual budget has been €70-80 million. At the beginning of 2014, a Public-Private Partnership in Robotics was set up, bringing together all the key European stakeholders in this area. In this partnership the European Commission will invest up to €700 million via the Horizon 2020 framework programme in roadmap-based research and innovation between 2014 and 2020. Previously, Dr Heikkilä was involved in computational and corpus linguistic research at the University of Helsinki, and he has a PhD in Linguistics from the University of Cambridge.

CATELIJNE MULLER

Name	Catelijne Muller
Affiliation	Member of the European Economic and Social Committee (EESC)
Title	**3 Callenges of AI for Society (and how (Not) to Address Them)**
Session	Keynote VIII
Time and location	Friday, February 16, 17.30-18.00, Room I UC, Hörsaal C 1

Abstract

It is virtually undisputed that AI can have significant benefits for society: applications can be used to make farming more sustainable and production processes more environmentally friendly, improve the safety of transport, work and the financial system, provide better medical treatment and in countless other ways. Indeed, it could even potentially help eradicate disease and poverty. But the benefits associated with AI can only be achieved if the challenges surrounding it are also addressed. In her opinion on Artificial Intelligence & Society, Catelijne Muller, Rapporteur on Artificial Intelligence of the European Economic and Social Committee, has identified 11 areas where AI raises societal concerns, ranging from ethics, safety, transparency, privacy and standards to labour, education, access, laws and regulations, governance, democracy, but also warfare and superintelligence. She will zoom into 3 of these challenges in her keynote speech and offer some suggestions on how (not) to address them.

About the speaker

Catelijne Muller is a member of the European Economic and Social Committee (EESC) and rapporteur of the recent EESC opinion "Artificial Intelligence and Society". The EESC identifies 12 societal impact domains of AI and gives a number of concrete recommendations to address these. According to Catelijne, the potential of AI for humanity can only be fully reaped if these challenges are addressed in a smart and timely manner. This requires the involvement of all relevant stakeholders: policy-makers, industry, social partners, consumers, NGOs, educational and care institutions, and experts and academics from various disciplines, including philosophy. AI raises ethical questions for example where policy makers, businesses and other stakeholders will need philosophical elucidation. Catelijne is an EU policy advisor for several trade union confederations in The Netherlands.

JOANNA BRYSON

Name	Joanna Joy Bryson, Reader in Artificial Intelligence
Affiliation	Department of Computer Science University of Bath, United Kingdom, EU
Title	**The Moral, Legal, and Economic Hazard of Anthropomorphising Robots and AI**
Session	Keynote IX
Time and location	Saturday, February 17, 08.45-10.00, Room I UC, Hörsaal C 1

Abstract

Computation, unlike mathematics, is a physical process that takes time, energy, and space. Humans have dominated this planet's ecosystem by learning to share and consolidate the outcome of their computation in an unprecedented way. Now we have augmented this processing with artificial intelligence (AI) and other information communications technology (ICT). The impact on our society is so spectacular that our institutions are struggling to keep pace, including the social sciences that might help us understand the promises and risks of our new situation. In this talk I will describe the theoretical biology of increasing communication between intelligent agents, and suggest changes to our individual, collective, political, and economic behaviour that might be consequences of the increasing presence of AI in our lives. Anthropomorphising – that is, over identifying with, and / or facilitating such overidentification – in most cases only exacerbates the complexity of forming coherent policy around these consequences. I will close with a series of policy recommendations concerning governance of and legal status for intelligent ICT, economic redistribution, individual and collective security, and intellectual diversity.

About the speaker

Joanna J. Bryson is a transdisciplinary researcher on the structure and dynamics of human- and animal-like intelligence. Her research covering topics from artificial intelligence, through autonomy and robot ethics, and on to human cooperation has appeared in venues ranging from a reddit to Science. She holds degrees in Psychology from Chicago and Edinburgh, and Artificial Intelligence from Edinburgh and MIT. She has additional professional research experience from Princeton, Oxford, Harvard, and LEGO, and technical experience in Chicago's financial industry, and international management consultancy. Bryson is presently a Reader (associate professor) at the University of Bath, and an affiliate of Princeton's Center for Information Technology Policy.

ROBERT TRAPPL

Name	Robert Trappl, Professor
Affiliation	Austrian Research Institute for Artificial Intelligence (OFAI), Vienna, Austria
Title	**Robot Deus**
Session	Keynote X
Time and location	Saturday, February 17, 10.30-11.45, Room I UC, Hörsaal C 1

Abstract

The ascription of god-like properties to machines has a long tradition. Robots of today invite to do so. We will present and discuss god-like properties, to be found in movies as well as in scientific publications, advantages and risks of robots both as good or evil gods, and probably end with a robot theology.

About the speaker

Robert Trappl, BEng, MBA, PhD, is Head of the Austrian Research Institute for Artificial Intelligence. He is lecturing at the University, the Medical University, and the University of Applied Arts, all three in Vienna. He has been working in the areas of rational and emotional personality agents for interactive media, the development of robots that may aid persons with special needs, how to aid persons who want to prevent the outbreak of a war or to end one with artificial intelligence methods applied to conflict databases, or how to develop better ethical systems for robots. In 2015 he edited the book "A Construction Manual for Robots Ethical Systems", Springer, Cham, Switzerland.

SESSION TALKS

Session 1: Robots, War, and Politics
Session 2: Artificial Sociality I
Session 3: Robots, Cognition, and Artificial Consciesness
Session 4: Roboethics I
Session 5: Artificial Sociality II
Session 6: Roboethics II
Session 7: Public Perceptions and Constructions of Robots
Session 8: Social Change
Session 9: Machine Ethics I
Session 10: Artificial Sociality III
Session 11: Machine Ethics II

BRIAN BLOOMFIELD AND THEODORE VURDUBAKIS

Name

Brian Bloomfield, Professor
Theodore Vurdubakis, Professor

Affiliation

Department of Organisation, Work & Technology,
Lancaster University, UK

Title

The Machine at War: On Killer Robots and the Rules of War

Session

Session 1: Robots, War, and Politics

Time and location

Wednesday, February 14, 09.00-09.30, Room III UC, Aula

Abstract

The paper offers a critical discussion of a research programme funded by the U.S. Army Research Office which focuses on the development of an "ethical governor" that will enable future autonomous robotic systems to use lethal force while adhering to the rules of war more closely than human combatants. The paper discusses the "ethical warrior robot" as an instance of how ostensibly "technical" matters serve as the means for articulating and rhetorically rehearsing the various philosophical antinomies and moral conflicts characteristic of Occidental (post?)modernity.

About the speaker

Brian's research interests include imaginaries and technoscientific innovations, including debates about human enhancement technologies. He has published in the fields of organisation studies, sociology, and science and technology studies.

Theo's main research focus is the social study of science and technology focusing on the role of technological practices and artefacts in performances of social organisation. Recent publications include Licence to Kill: the Organization of Destruction in the 21st Century, a special issue of Organization (Sage, 2017) co-edited with Brian Bloomfield, Gibson Burrell and Lucy Suchman.

JOANNA L. D. WILSON

Name	Joanna L. D. Wilson, Research Associate
Affiliation	International Law, Conflict and Security Research Group University of Glasgow, UK
Title	**Lethal Autonomous Weapons Systems:** **The End of Humanity in International Humanitarian Law?**
Session	Session 1: Robots, War, and Politics
Time and location	Wednesday, February 14, 09.30-10.00, Room III UC, Aula

Abstract

This paper argues that Lethal Autonomous Weapons System(LAWS) threaten to undermine the importance of humanity in International Humanitarian Law(IHL). The extent to which current IHL can provide for the regulation of LAWS is questioned, given that IHL assumes a degree of human agency, referring continually to "persons" in its provisions. It is argued that, to stretch this term to encompass a machine would be legally and ethically controversial at best. The importance of the human element in a soldier's work (a great deal more than fighting alone) is examined, questioning whether a robot ought to, or indeed is at all able to, replace a human soldier in every aspect of his or her duties. The protective concepts governing warfare (Indiscriminate Attack, Unnecessary Suffering...) and the moral and analytical awareness they require, together with the ethical considerations that humanise the decision to go to war, are highlighted. Accordingly, the paper asks, even if, on a technical, and technological level, LAWS could, through the application of complex algorithms, effectively abide by the rules of IHL, ought the power over a human's life be granted to a machine? This discussion will then be developed to illuminate broader concerns regarding the future of warfighting, the future of International Humanitarian Law and its ability to successfully and effectively regulate contemporary means of warfare, calling into question the ability of the law, as the UK Attorney General recently articulated it, to "protect our most ancient freedoms from the most modern dangers."

About the speaker

Research Associate in International Law, Conflict & Security and PhD candidate, University of Glasgow (Supervision: Robin Geiß/Christian Tams); First Class MA(Hons) International Relations and Spanish, University of St Andrews; LLM International Law and Security with Merit, University of Glasgow. Previous work: IES Villajunco, Santander; Bingham Centre for the Rule of Law, BIICL, London; Manual on the International Law Applicable to Military Uses of Outer Space (MILAMOS) Project. Research interests include peace and conflict studies; security; international humanitarian law; critical approaches to international law; and law and morality.

NIKLAS TOIVAKAINEN

Name

Niklas Toivakainen, PhD Fellow

Affiliation

The Department of Philosophy, History, Culture and Art Studies, University of Helsinki, Finland

Title

Capitalism, Labour and the Totalising Drive of Technology

Session

Session 1: Robots, War, and Politics

Time and location

Wednesday, February 14, 10.00-10.30, Room III UC, Aula

Abstract

As the conference description rightly points out the automation of labour and its socio-economic, political and ethical challenges are directly connected to a strive for gained productivity. The goal of my paper is to analyse the dialectical relationship (particularly within a capitalist system) between labour, productivity and surplus-value, to illustrate that the expansion and deepening of automation of labour by the help of robotics pushes the logic of master-slave dialectics to its logical conclusion, and to illustrate how and why the question of just distribution (e.g. universal basic income) is inherently part of this dynamics. I will push the analysis further by reflecting on what hopes and promises are invested in the imperative for gained productivity, searching for, via a short genealogical depiction, the underpinning moral-existential energy and drive forming a (by now more or less) global culture that, in its imagination, has come to see a widening and deepening of a technological presence and dependency as unavoidable.

About the speaker

Niklas Toivakainen is a PhD student in philosophy at the University of Helsinki, currently finalising his thesis on the classical mind-body problem and its moral-existential roots. For the past six years he has worked on philosophy of science and –technology with a specific interest for AI and robotics, both publishing and lecturing on the matter. He is also the organizer and coordinator of a project on the philosophy of technology for an independent research- and artist centre.

FLORIAN SAURWEIN

Name

Florian Saurwein, Dr., Senior Scientist

Affiliation

Institute of Comparative Media and Communications Studies, Austrian Academy of Sciences and Alpen-Adria-Universität, Austria

Title

Politics of automation: Risks and accountability in the domain of algorithmic selection

Session

Session 1: Robots, War, and Politics

Time and location

Wednesday, February 14, 10.30-11.00, Room III UC, Aula

Abstract

Recent developments in economy and society are subject to far-reaching changes that are shaped by digitization, mobile communication, big data, robotics and artificial intelligence. Among these technology trends, one phenomenon of increasing relevance is „algorithmic selection" which builds the technological fundament for several Internet applications such as search engines, news-aggregators, recommender systems, scoring services as well as monitoring and forecast applications. The social relevance of algorithmic selection is caused by its wide and rapid diffusion, its increasing influence in a variety of social domains and economic sectors and the risks that accompany algorithmic selection, e.g., manipulation, bias and censorship. The rise of algorithms, their increasing influence and the involved risks trigger the debate about appropriate governance and accountability mechanisms. The presentation provides an overview on governance and accountability structures in the domain of algorithms which points to many actors who are involved in the governance of algorithms. From a governance perspective, the paper argues, that accountability structures are determined by application structures and the structures of control of algorithms. The variety of involved parties, the distribution of action and the broad spectrum of accountability conceptions point to a structure of "distributed accountability" in accountability networks. This involves the danger of a confusion of accountability and shirking of responsibility in the domain of algorithms.

About the speaker

Florian Saurwein is Senior Scientist at the Institute for Comparative Media- and Communication Studies (CMC) of the Austrian Academy of Sciences and the Alpen-Adria Universität. He studied Communication Science and Political Science in Austria and Switzerland and holds a PhD from the University of Zurich. His research centers around interrelations of technology, media and society. This includes the impact of media change on society, the public sphere and democracy, media governance and alternative modes of regulation (self- and co-regulation), governance choice, the growing power of algorithms and governance options for algorithmic selection on the Internet.

MATTHIJS MICHIEL MAAS

Names

Matthijs Michiel Maas, PhD Fellow

Affiliation

Centre for International Law, Conflict and Crisis, Faculty of Law
University of Copenhagen, Denmark

Title

Lessons from nuclear arms control for the responsible governance of AI development

Session

Session 1: Robots, War, and Politics

Time and location

Wednesday, February 14, 11.00-11.30, Room III UC, Aula

Abstract

New technologies, particularly those which are perceived to offer a significant competitive edge, frequently disrupt previously stable international governance arrangements or power distributions. Artificial Intelligence is one such critical technology. How can one design stable multilateral governance arrangements, which can minimize the risks, when these technologies are seen to offer strong unilateral strategic advantages to parties. Drawing a parallel with the historical experience of nuclear arms control, suggests that (1) arms races are not inevitable, but can be slowed or even averted; (2) small communities of experts, appropriately organized and mobilized, can have a disproportionate policy-framing impact; (3) AI systems, like other tightly coupled, opaque systems, will always generate 'normal accidents', ensuring that perfect safety will remain categorically out of reach.

About the speakers

Matthijs Maas is a PhD Fellow in Law and Policy on Global Catastrophic and Existential Threats at the University of Copenhagen. He holds an M.Sc. in International Relations from the University of Edinburgh, and has previously worked in diplomacy and consultancy, as well as for The Hague Centre for Strategic Studies, for a report on global trends in defense applications of artificial intelligence. His research interests include the safe governance of AI and the effects of emerging technologies on strategic stability and societal security, amongst others. He is also a Junior Associate of the Global Catastrophic Risk Institute.

MORTEN DIGE

Name	Morten Dige, Assoc. Professor
Affiliation	Department of Philosophy and History of Ideas, Aarhus University, Denmark
Title	**The Pragmatics of Robotic Warfare**
Session	Session 1: Robots, War, and Politics
Time and location	Wednesday, February 14, 11.30-12.00, Room III UC, Aula

Abstract

This paper is about the import of what I propose to call the *pragmatics* of robotic warfare. Pragmatics in linguistics concerns itself with the significance of an utterance's *context* in terms of e.g. the intentions of and relations between the language users. Abstracting from such context involves a high risk of misunderstandings or incomprehension. Analogously, the pragmatics of a technology provides context in terms of the technology's concrete *workings*, the *intentions* of its development, its social and political *genesis*, its in-built purposes, the *relations* of those affected by the technology and so on. Pragmatic considerations thus move from the "tactical" level of the concrete practical use of a given technology to the "strategic" level of the overall aims and strategies of robotic warfare and the positions of those affected. The point is that such pragmatic features constitute the design of technologies and weapons systems and thus define their realistic applications. I will argue that the pragmatics of robotic warfare include morally problematic strategies of aggression, extreme power asymmetry and maximum protection of 'our' combatants at the expense of 'their' civilians. I further argue that certain arguments in favour of robotic warfare are based on a naïve analysis of immoral behaviour by non-robotic, i.e. human combatants, an analysis that is once again abstracted from the pragmatics of the armed conflicts in question.

About the speaker

Morten Dige is associate professor in applied ethics at Aarhus University. His main research interests are bioethics, professional ethics and the ethics of war. He has published papers and books on bioethical principles, euthanasia, genetic enhancement, the ethics of occupational therapy and hospice care, drone killings, just warfare (*jus in bello*) and torture. His general approach (if any) is to investigate the implications of a humanist and non-consequentialist approach to moral problems.

ANNA STRASSER

Names	Anna Strasser, PhD
Affiliation	*last affiliation:* Berlin School of Mind and Brain, Humboldt Universität zu Berlin, Germany
Title	**Artificial agents in the realm of social cognition**
Session	Session 2: Artificial Sociality I
Time and location	Wednesday, February 14, 09.00-09.30, Room IV UC, Seminarraum III

Abstract

Standard notions in philosophy of mind characterize socio-cognitive abilities as if they are unique to sophisticated adult human beings. But soon we are going to be sharing a large part of our lives with various kinds of artificial agents. This motivates to explore how we can expand these restrictive notions in order to account for other types of agents. Current minimal notions such as minimal mindreading and a minimal sense of commitment present a promising starting point since they show how these notions can be expanded to infants and non-human animals. This paper will sketch how a notion of joint action can be expanded to artificial agents.

About the speaker

Dr. Anna Strasser studied mathematics, computer science (artificial intelligence), comparative literature, cognitive sciences and philosophy. 2005 she published her dissertation in philosophy with the title 'Cognition of artificial systems'.

After various postdoctoral positions in Freiburg and Berlin, she is now a freelance philosopher in Berlin. She considers herself as an empirically informed philosopher with a special interest in social cognition focusing on the interfaces between philosophy and developmental psychology / artificial intelligence / animal cognition.

MACIEJ MUSIAŁ

Name

Maciej Musiał, Asst. Professor

Affiliation

Department of Philosophy, Adam Mickiewicz University in Poznań, Poland

Title

Automation, the meaning of life and intimate relationships

Session

Session 2: Artificial Sociality I

Time and location

Wednesday, February 14, 09.30-10.00, Room IV UC, Seminarraum III

Abstract

This paper assumes that automation will lead to massive technological unemployment and that unconditional basic income will be implemented to avoid the negative economic consequences. On the basis of this assumption, the paper examines some of the discussions about possible reformulations of our concepts concerning the meaning of life and human flourishing, particularly in reference to the status of intimate relationships. It demonstrates that not only do our attitudes towards the future of intimate relationships remain unclear – especially when it comes to the involvement of social robots – but even our evaluations of contemporary intimacy turn out to be vague and paradoxical.

Therefore, the presentation points out to the blinds spots of the discussion and reveals contexts that remain in the dark rather than delivers any final answers.

About the speaker

Maciej Musiał received his PhD in philosophy from Department of Philosophy, Faculty of Social Sciences, Adam Mickiewicz University in Poznań, Poland, where he currently works as an assistant professor.

His main areas of interest include present and future relations between humans and robots in the broader context of general cultural transformations. Specifically, he is interested in (1) intimate relationships between human beings and robots, (2) magical thinking as a part of experiencing robots and (3) contemporary attitudes towards robots as a symptom of re-enchanting of the world. He works at a book "Enchanting Robots" that covers all three abovementioned issues.

AURÉLIE CLODIC ET AL.

Names

Aurélie Clodic, Research Engineer[1]
Rachid Alami, Senior Scientist[1]
Virginia Dignum, Assoc. Professor[2]
Agnese Augello, Researcher[3]
Frank Dignum, Assoc. Professor[4]
Javier Vázquez-Salceda, Assoc. Professor[5]
Manuel Gentile, Researcher[6]

Affiliations

[1] LAAS-CNRS, Université de Toulouse, CNRS, Toulouse, France
[2] Delft University of Technology, Netherlands
[3] Istituto di Calcolo e Reti ad Alte Prestazioni, National Research Council of Italy, Italy
[4] Utrecht University, Utrecht, The Netherlands
[5] Universitat Politècnica de Catalunya (UPC), Spain
[6] Istituto per le Tecnologie Didattiche, National Research Council of Italy, Italy

Title

On the pertinence of Social Practices for Social Robotics

Session

Session 2: Artificial Sociality I

Time and location

Wednesday, February 14, 10.00-10.30, Room IV UC, Seminarraum III

Abstract

In the area of consumer robots that need to have rich social interactions with humans, one of the challenges is the complexity of computing the appropriate interactions in a cognitive, social and physical context. Of course people have managed this complexity for ages already. One of the ways to simplify social interactions is by standardizing them based on particular contexts. E.g. even though greetings have many variations, the patterns they follow are quite standard and used in some form all over the world. At the same time the variations within the physical actions that can be chosen have their own social effect. E.g. boxing a hand instead of shaking it signifies that we are in an informal setting and are peers in this context. We chose the human use of social practices and its associated theory as a basis for modeling the interactions for social robots. Social Practices describe physical and social patterns of joint action as routinely performed in society and provide expectations about the course of events and the roles that are played in the practice. We will show how Social Practices can structure human-robot interactions in a way that feels natural to people and can ensure that robots are aware of their own social identities and the identities of others and also be able to identify the different social contexts and the appropriate social practices in those contexts.

About the speakers

Aurélie Clodic received a PhD in robotics in 2007 for which she elaborated and implemented ingredients for human-robot joint activity in several contexts. **Virginia Dignum**'s research focuses on value-sensitive design of intelligent systems, in particular on the formalisation of ethical and normative behaviours and social interactions. **Frank Dignum** is working on social aspects of software agents with applications in serious gaming, social simulations and robotics. **Agnese Augello'**s research activity deals with the implementation of intelligent agents, able to interact with users to retrieve information, for educational purposes and to provide support in decisional processes. **Javier Vázquez-Salceda**'s research is focused on theoretical and applied issues of behavioural modelling, normative systems, software and robotic agents' autonomy and social control. **Manuel Gentile** is working on the application of the theory of social practice in the education, specifically to design intelligent virtual agent for serious games. **Rachid Alami**'s main research contributions fall in the fields of Robot Decisional and Control Architectures, Task and motion planning, multi-robot cooperation, and human-robot interaction.

PAK-HANG WONG

Name	Pak-Hang Wong, Research Associate
Affiliation	Department of Informatics Universität Hamburg, Germany
Title	**Ritualizing Robots**
Session	Session 2: Artificial Sociality I
Time and location	Wednesday, February 14, 10.30-11.00, Room IV UC, Seminarraum III

Abstract

Robots are (or, will be) increasingly interwoven into the social fabric of our society, as the area and scope of application continue to expand. The introduction of robots to our social life could significantly alter existing human-human interaction (and, relations) as human interacting through and with robots, thereby supplementing or replacing existing human-human interaction with human-robot interaction. Philosophers and roboticists have raised concerns about the supplement and replacement of human with machines in various aspects of our life. Particularly, they have considered the impacts of robots on specific values (e.g. friendship, care, authenticity, etc.), and examined whether the design and use of robots are ethically permissible and/or conducive to the good life. These concerns are essential in our decisions on whether or not to accept the use of robots; and, they are also crucial in informing us what an ethically acceptable design and use of robots is. However, there is one aspect of human-robot interaction that has not received sufficient attention in ethical reflection, namely the bodily dimension of human-robot interaction. The aim of this paper is to make a case for the ethical significance of the bodily dimension of human-robot interaction.

About the speaker

Pak-Hang Wong is a Research Associate at Universität Hamburg, Department of Informatics. His research interests are in philosophy and ethics of technology, responsible innovation, and intercultural information ethics. Currently, he is exploring how information technologies affect moral responsibility and cultivation of virtues. He is the co-editor of *Well-Being in Contemporary Society* (2015, Springer), and his works have been published in *Philosophy & Technology, Zygon, Science and Engineering Ethics, Dao*, and other academic journals.

AURA-ELENA SCHUSSLER

Name

Aura-Elena Schussler, PhD.

Affiliation

Departament of Philosophy, Faculty of History and Philosophy, "Babeş-Bolyai" University, Cluj-Napoca, 1 Mihail Kogălniceanu Street, 400084, Romania

Title

Robot Clones – New Perspectives in Robophilosophy and Technoimmortality

Session

Session 3: Robots, Cognition, and Artificial Consciousness

Time and location

Wednesday, February 14, 14.30-15.00, Room I UC, Hörsaal C 1

Abstract

This research aims to analyze technoimmortality in the humanoid robot clones paradigm. Starting from the theories of Ray Kurzweil and Martine Rothblatt, relating to mind-uploading and technoimmortality in the cyberconsciousness and robot clones paradigm, the research aims to establish both the ontological status of robot clones as well as their social status. Thus, the overall objective of this paper is to analyze the risks/benefits that exist in the robophilosophy paradigm, in the event that these robot clones will live alongside humans in society. In such a situation, the problem regarding the ontological status of robot clones in society involves the need to analyze the personhood hypothesis of robot clones (if the robot clones could, or could not have, personhood), embraceing the theories of Immanuel Kant, Daniel Dennett and Lynne Rudder Baker. The theoretical objective aims to deconstruct the way in which the theory of mind-uploading (consciousness) into a humanoid robot clone – supported by the arguments of Ray Kurzweil and Martine Rothblatt – actually leads to a simulacra of our own person, namely a philosophical zombie, according the theories of Ned Block, David Chalmers and John Searl. The approach will be to examine Kurzweil and Rothblatt's arguments, along with Block, Chalmers and Searl's critique on the artificial consciousness of robot clones, supplemented by Kant and Dennett's arguments on personhood as applied to the humanoid robot clones paradigm.

About the speaker

Aura-Elena Schussler was born in 1986 in Romania. She obtained a Dr. Phil. in 2013 at "Babeş-Bolyai" University of Cluj-Napoca, Romania, Faculty of History and Philosophy, Field Philosophy. Main research areas: Postmodernism, Transhumanism, Posthumanism, Pornography, Philosophy of Deconstruction. Main publications: Pornography in Transhumanism – Towards a Sexuality of Singularity; Pornography as a Biopolitical Phenomenon; The Cyberspace Myth and Political Communication, Within the Limits of Netocracy; Pornography and Postmodernism; From Eroticism to Pornography: the Culture of the Obscene. The author of two books, "The Obscene as Postmodern Value" (In Romanian) and "Between Body and Mind: About Seduction, Eroticism and Pornography" (In Romanian).

STACEY LEIGH VORSTER

Name

Stacey Leigh Vorster, Ms, Lecturer

Affiliation

History of Art, Wits School of Arts, University of the Witwatersrand, South Africa

Title

Recognition, encounter, and vision, in the work of Zhou Song

Session

Session 3: Robots, Cognition, and Artificial Consciousness

Time and location

Wednesday, February 14, 15.00-15.30, Room I UC, Hörsaal C 1

Abstract

While most discussions of the relationship between art and technology focus on 'new media' practice, there are substantial arguments to be considered through 'traditional media' such as painting and sculpture. Art and technology intersect through the process and desire of imagination and, in particular, through the attempt to reproduce life as mimetically as possible. In this paper, I consider the practice of Beijing-based artist Zhou Song, who images and imagines new worlds as constituted by social robots. Drawing on the frameworks of the politics of recognition, in particular Kelly Oliver's formulation of witnessing, and Gilles Deleuze's notion of the encounter, I analyze several of Zhou's works in order to understand what possibilities there are for reading Oliver and Deleuze against each other. I argue that Zhou's hyper-realistic images, which use quotation as a device through which to balance the uncanny with the familiar, prompt an encounter that challenges the cognitive ordering of the world. This research contributes to developing discourse on social robots through a cultural lens.

About the speaker

Stacey Vorster is a researcher, curator, and lecturer in Wits History of Art. From 2012 until 2016, she curated the Constitutional Court Art Collection, which was originally put together by Justice Albie Sachs. Her research interests include postcolonialism, early 20th-century South African art and exhibitions, curating and exhibition histories, gender and queer politics, public art, archival theory and practice and modernism and modernities. Over the last three years, she has collaborated with Joni Brenner, Laura de Becker, and Justine Wintjes to produce 'Lifelines', 'Life-Line-Knot' and most recently 'Lifescapes' – a series of edited volumes and accompanying exhibitions in collaboration with postgraduate students in the History of Art department.

Vorster is currently completing a Ph.D. in cultural analysis at the University of Amsterdam on curatorial practice in post-apartheid South Africa.

FABIO FOSSA

Name	Fabio Fossa, Ph.D.
Affiliation	DIRPOLIS Institute of Law, Politics and Development Scuola Superiore Sant'Anna, Pisa, Italy
Title	**Purpose-built Artefacts or Special-purpose Human Beings? Robotics, Philosophy and the Law**
Session	Session 3: Robots, Cognition, and Artificial Consciousness
Time and location	Wednesday, February 14, 15.30-16.00, Room I UC, Hörsaal C 1

Abstract

In my presentation I wish to focus on the interactions between philosophical and legal aspects in the debate on the regulation of robotics. By doing this I hope to contribute to exploring the tension that obtains between "essentialist" and "pragmatic" approaches to the issue, the possibility of mutual contaminations, and the extent of rightful criticism.

In the first half of my talk I will contrast Joanna Bryson's approach to artificial agents as "purpose-built artefacts" with Jack Balkin's characterization of artificial agents in terms of "special-purpose human beings". Despite the similarities, which I will briefly specify, the two concepts are one the flip side of the other: they lead to different positions regarding the regulations of robotics and, in particular, the social and legal status that should be acknowledged to artificial agents.

In the second half of my talk I will try and shed some light on how disagreement arises in this debate. First, I will present an instance of disagreement within the boundaries of the pragmatic framework. Furthermore, I will suggest that, even though both the authors assume a pragmatic approach, essentialist conceptions are not entirely set aside and may partially account for disagreement. Finally, I will try to determine if and to what extent the pragmatic approach may be criticized for reasons related to the influence it may exercise on the social understanding of robots-i.e., for essentialist reasons.

About the speaker

Fabio Fossa earned his Ph.D. in moral philosophy at the University of Pisa with a thesis on the concept of moral application in applied ethics, hermeneutics and machine ethics. His main research areas are philosophy and ethics of technology, with a focus on Artificial Moral Agents, and the thought of Hans Jonas. He is currently a Post-Doc researcher at the Scuola Superiore Sant'Anna in the context of a project on "Robots, Corruption, and Social Trust".

FRODO PODSCHWADEK

Name	Frodo Podschwadek, PhD Researcher
Affiliation	Philosophy, School of Humanities, University of Glasgow, Scotland, United Kingdom
Title	**Respect for Simulated Persons**
Session	Session 4: Roboethics I
Time and location	Wednesday, February 14, 14.30-15.00, Room III UC, Aula

Abstract

Strong AI capable of meaningful social interaction with humans is, as of now, an unrealized possibility. Chances are good that this will not change, as the trend away from general purpose computing and toward either highly specialized and/or distributed systems might not offer sufficient incentives to develop strong general AI with social capacities.

However, there remains a plausible version of AI capable of interaction with human beings in socially meaningful ways, mainly because they were constructed to do exactly that. AI could be employed, for example, as simulations of existing (or once existing) persons.

With sophisticated versions of such simulated persons, it would be difficult to draw a principled line between simulated and natural, or "real", persons in any other way than on the basis of the physical substrate of their personhood. One of the questions implied by this partial indistinguishability between simulated and natural persons would be: should society assign a moral status to simulated persons, either as moral patients or even moral agents?

In this paper I am arguing that there are good pragmatic reasons to assign simulated persons at least a limited moral status by sketching the conditions under which society should be willing to accept artificially intelligent entities as members of the community of social morality.

About the speaker

Frodo Podschwadek has an MA in Philosophy from the University of Hamburg and is currently a PhD researcher in Philosophy at the University of Glasgow. His main interests are political philosophy, applied ethics, philosophy of education, and philosophical aspects of Artificial Intelligence.

In regard to AI, Frodo is primarily interested in how autonomous artificial agents could (and should) be integrated in our common social morality and what sort of changes AI might bring about for political systems.

HIROYA SHIMOYAMA

Name	Hiroya Shimoyama, Part-time Lecturer
Affiliation	School of the Arts, Nagoya University of Arts, Japan
Title	**Deconstruction of Roboethics through the Concept "Robomot"**
Session	Session 4: Roboethics I
Time and location	Wednesday, February 14, 15.00-15.30, Room III UC, Aula

Abstract

In this research, referring to works of Jacques Derrida and David J. Gunkel, we will propose a new concept "Robomot". Jacques Derrida considers the subjectivation through animals, and he shows that the way of subjectivation will be possible by the contrast with no-human beings such as animals and beasts. Gunkel also follows this argument, he shows that the way of subjectivation is possible by the contrast with machines and robots. Human beings can always already define "the subject", "I", and "ego" by helping others. We need others to talk about "subject", but this other is the same. We will clarify the sacrifice structure of exclusion-inclusion in the ethics, and how to deconstruct this structure. For to deconstruct it, Derrida created the new concept "animot (the word[mot] of animals)" in the animal ethics, we will create "robomot (the word of robos)" in the roboethics. There are many "robo-mot" in the world (in the presentation some "robomot"s will be shown), but these "robomot" are pronounced in the same sound in French. If we would want to make the distinction these "mot"s, we should express this concept in the "écriture ", not in the "parole ". This concept does not converge the meaning of word into the "subject", but the meanings of words will diverge in many directions. This is the way of to think about "the Other", "the Other" is only thought all the time. "Robomot" shows just responsibility for "the Other".

About the speaker

Hiroya Shimoyama is Part-time Lecturer at the School of the Arts, Nagoya University of Arts, Japan. His main research areas are continental philosophy, 20th-century French philosophy, and philosophy of technology or art in the information society. He has written the paper on Martin Heidegger, Gilbert Simondon, and Gilles Deleuze. He also researches the contemporary art and media art.

RAUL HAKLI AND PEKKA MÄKELÄ

Names

Raul Hakli, Researcher
Pekka Mäkelä, Researcher

Affiliation

TINT, Centre for the Philosophy of the Social Sciences
Department of Political and Economic Studies
University of Helsinki, Finland

Title

Bad Arguments for Responsibility Sharing

Session

Session 4: Roboethics I

Time and location

Wednesday, February 14, 15.30-16.00, Room III UC, Aula

Abstract

We study whether humans and technological artefacts, such as robots, can form hybrid agents that would be fit to be held morally responsible for their actions. Several arguments for this possibility have been presented but we argue that they have not been successful. We identify three argument forms that have been employed to argue for shared responsibility between humans and machines: (1) Argument from gradual properties, (2) Argument from responsibility gaps, and (3) Argument from extended agency. We analyse these arguments and aim to show that they are invalid.

About the speakers

Raul Hakli and **Pekka Mäkelä** work together on philosophy of social robotics and various topics within the field of social ontology and collective intentionality, including social and collective action, collective responsibility, and collective epistemology.

CATRIN MISSELHORN AND WULF LOH

Names	Catrin Misselhorn, Chair for the Philosophy of Science and Technology, Director of the Institute of Philosophy Wulf Loh, Academic Staff (Adjunct Professor)
Affiliation	Institute for Philosophy, University of Stuttgart, Germany
Title	**Autonomous Driving an Perverse Incentives**
Session	Session 5: Artificial Sociality II
Time and location	Wednesday, February 14, 14.30-15.00, Room IV UC, Seminarraum III

Abstract

This paper discusses the ethical implications of perverse incentives with regard to autonomous driving. We define perverse incentives as a feature of an action, technology, or social policy that invites behavior which negates the primary goal of the actors initiating the action, introducing a certain technology, or implementing a social policy. As a special form of means-end-irrationality, perverse incentives are to be avoided from a prudential standpoint, as they prove to be directly self-defeating: They are not just a form of unintended side-effect that must be balanced against the main goal or value to be realized by an action, technology, or policy. Instead, they directly cause the primary goals of the actors – i.e. the goals that they ultimately pursue with the action, technology, or policy – to be "worse achieved" (Parfit). In this paper, we elaborate on this definition and show that adverse incentives can manifest on three quantitative levels, where only at the last one the threshold for a perverse incentive is crossed. In addition, we discuss different possible relevant actors and their goals in implementing autonomous vehicles. We conclude that even if some actors do not pursue traffic safety as their primary goal, as part of a responsibility network they incur the responsibility to act on the common primary goal of the network, which we argue to be traffic safety.

About the speakers

Catrin Misselhorn holds the Chair for the Philosophy of Science and Technology and is director of the Institute of philosophy at the University of Stuttgart. Among her wide variety of research interests are: philosophical problems of artificial Intelligence, robot and machine ethics, ethical assessment of technologies (ELSI), and social simulation and collective agency."

Wulf Loh is postdoctoral researcher in the BmBF project "Be-Greifen" at the Chair for the Philosophy of Science and Technology, Stuttgart University. His research interests include Critical Theory, practice theory, robot ethics, and questions of privacy.

RIKKE NØRGÅRD, NIAMH NÍ BHROIN, AND CHARLES MELVIN ESS

Names

Rikke Toft Nørgård, Assoc. Professor[1]
Niamh Ní Bhroin, Postdoctoral Researcher[2]
Charles Melvin Ess, Professor[b]

Affiliations

[1] Centre for Teaching Development and Digital Media, Aarhus University, Denmark
[2] Department of Media and Communication, University of Oslo, Norway

Title

Robot Teachers: Towards a Phronetic Model for Future-Oriented Education Design

Session

Session 5: Artificial Sociality II

Time and location

Wednesday, February 14, 15.00-15.30, Room IV UC, Seminarraum III

Abstract

The world's first robot teacher, Saya, was introduced to a classroom in Japan in 2009. Saya, had the appearance of a young female teacher. She could express six basic emotions, take the register and shout orders like 'be quiet' (The Guardian, 2009). Since 2009, humanoid robot technologies have developed. It is now suggested that robot teachers may become regular features in educational settings, and may even 'take over' from human teachers in ten to fifteen years (cf. Amundsen, 2017 online; Gohd, 2017 online).

Designed to look and act like a particular kind of human; robot teachers mediate human existence and roles, while also aiming to support education through sophisticated, automated, human-like interaction. Our paper explores the design and existential implications of ARTIE, a robot teacher at Oxford Brookes University (2017, online). Drawing on an initial empirical exploration we propose a phronetic model to support the future design of robot teachers, in an effort to enhance learners' flourishing and pedagogical formation in educational contexts.

About the speakers

Rikke Toft Nørgård's field of research lies within 'futuremaking through design thinking and new technologies in education', new educational potentials with new technologies and media, and development of the concept of 'educational design thinking' (merging educational philosophy, design thinking and practices with new technologies). Her work particularly focuses on value-based vision-driven design thinking for future HE and new HE futures.

Niamh Ní Bhroin is a founding member of the Centre for Research on Media Innovations, and her main research interests are Media Innovation, Digital Media, Participation, Empowerment, Children and Media, and Ethics.

Charles M. Ess researches, publishes and teaches at the intersections of philosophy, computational technologies, applied ethics, comparative philosophy and religion, and media studies, with particular focus on: research ethics, Digital Religion, and virtue ethics in media and communication, specifically social robots.

VIRGINIA SANCHINI ET AL.

Names

Virginia Sanchini, PhD, Adjunct Professor [1]
Clara Pozzi, Psychologist [2]
Elettra Oleari, Nuclear Engineer [2]
Francesca Sacchitelli, Nutritionist [2]
Alberto Sanna, Director [2]
Mark Neerincx is Full Professor [3]

Affiliations

[1] Department of Oncology and Hemato-Oncology, University of Milan, Milan, Italy; Center for advanced technology in health and wellbeing, San Raffaele Research Institute, Milan, Italy.
[2] Center for advanced technology in health and wellbeing, San Raffaele Research Institute, Milan, Italy.
[3] Technische Universiteit Delft, Department of Intelligent Systems, Interactive Intelligence, Delft, Netherlands.

Title

Humanoid robot for children with type 1 diabetes: challenges and ethical implications of a supportive tool in the therapeutic process

Session

Session 5: Artificial Sociality II

Time and location

Wednesday, February 14, 15.30-16.00, Room IV UC, Seminarraum III

Abstract

Type 1 Diabetes (T1DM) is an overwhelming pathology, since it requires to cope with different therapeutic tasks and to adopt major life changes. In recent years, it is widely spreading up, affecting a growing number of children. Some proposals have been raised with respect to the introduction of humanoid robots in the healthcare domain for paediatric patients, especially in the contexts of rehabilitation and autism. Our aim is to discuss to what extent a humanoid robot can represent a supportive tool for children with T1DM and their families, thus proving to have a huge impact in the diabetes-related care process.

About the speakers

Since 2015 **Virginia Sanchini** is collaborating with the Center for advanced technology in health and wellbeing as a researcher ethics consultant, analysing of the potential ethical implications in developing and exerting new technologies and e-services, especially in healthcare settings.

Clara Pozzi works at the Pediatric Unit at IRCCS Ospedale San Raffaele in Milan within the Psychology Service, where she conducts interviews with children, adolescents and their parents, aimed to support their experiences and assess the cognitive, emotional, relational, functioning/disability and quality of life of young patients.

Elettra Oleari's fields of investigation are cognitive robotics, human-robot interaction and child-robot interaction, innovative technologies for edutainment, robotic surgery, process reengineering, patient safety, risk analysis and applications for health and wellbeing user modelling.

Francesca Sacchitelli's competences and research interests are oriented on developing nutritional contents for fostering a good nutritional education and caring of people with food diseases.

Alberto Sanna is the director of the e-Services for Life and Health Research Unit which manages the three research programmes: Smarter and Safer Hospital, Smarter and Health- ier Life, Smarter and Healthier City.

Mark Neerincx's recent projects focus on the situated cognitive engineering of electronic partners (ePartners) that support the social, cognitive and affective processes in human-automation collaboration to enhance performance, resilience, health and/or wellbeing.

EDWARD HOWLETT SPENCE

Name

Edward Howlett Spence, Dr

Affiliation

School of Communication and Creative Industries Charles Sturt University, Australia, Department of Philosophy, University of Sydney, Australia, 4TU Centre for Ethics and Technology, Netherlands.

Title

The Moral Life of Androids: Should Robots Have Rights?

Session

Session 6: Roboethics II

Time and location

Wednesday, February 14, 16.30-17.00, Room III UC, Aula

Abstract

The question I explore is whether intelligent autonomous Robots will have moral rights. Insofar as robots can develop fully autonomous intelligence, I will argue that Robots will have moral rights for the same reasons we do. For since morality is universal and species-transcendent it is not merely restricted to human beings alone. Any species other than our own, including artificially generated new and evolving species such as thinking, intelligent and fully autonomous robots that meet the conditions for rational agency for moral status must also be accorded the same moral rights to which we are entitled. Basing my analysis on Alan Gewirth's Principle of Generic Consistency (PGC) – that demonstrates that autonomous purposive agency (APA) is both necessary and sufficient condition for having universal rights (Gewirth, 1978; Bayleveld 1991; Spence 2006) I shall show that insofar as androids have the relevant (APA) then they too will have rights commensurable to those of human beings. In addition, I will also examine the social and cultural interaction, human-robot interactions (HRI) that will be necessary for the enculturation and socialization of androids. Finally, I will address the question of trust. Concern of trust is the overarching concern of existential risk as raised recently by several physicists and philosophers. I will demonstrate that a normative way of evaluating that risk is by ascertaining how and to what extent the creation of androids might impact on our collective human wellbeing.

About the speaker

Edward Spence PhD teaches and conducts research in philosophy and ethics of communication technologies at Charles Sturt University. He is Research Fellow at the 4TU.Centre for Ethics and Technology, Netherlands and the Department of Philosophy, University of Sydney. He is the author of several books among others *Media Corruption in the Information Age* (Springer, forthcoming) *Ethics for a Digital Era* (2018), *Media Markets and Morals* (2011) and *Ethics Within Reason: A Neo-Gewirthian Approach*, (2006). He is the founder and director of the *Theatre of Philosophy* project that combines philosophy with drama performance and audience participation through discussion in public forums.

BERTRAM F. MALLE

Names	Bertram F. Malle, Professor
Affiliation	Department of Cognitive, Linguistic, and Psychological Sciences, Brown University, U.S.A.
Title	**From Binary Deontics to Deontic Continua: The Nature of Human (and Robot) Norm Systems**
Session	Session 6: Roboethics II
Time and location	Wednesday, February 14, 17.00-17.30, Room III UC, Aula

Abstract

To make artificial autonomous agents safe and beneficial contributors to society we may strive to equip them with norms. Previous models of what norms are and how they could be formalized have typically relied on binary deontic concepts (forbidden or not, obligatory or not, etc.). But human norms may not come as binaries; they may come as continua. In two studies, we show that people consistently and consensually distinguish between deontic phrases that span degrees of prohibition and degrees of prescription. In light of these results, formal systems for norms in robots must be expressive enough to handle such deontic continua.

About the speakers

Bertram F. Malle was trained in psychology, philosophy, and linguistics at the University of Graz, Austria, and received his Ph.D. in Psychology from Stanford University in 1995. He received the Society of Experimental Social Psychology Outstanding Dissertation award in 1995, a National Science Foundation (NSF) CAREER award in 1997, and he is past president of the Society of Philosophy and Psychology. He is currently Co-Director of the Humanity-Centered Robotics Initiative at Brown University. Malle's research, funded by the NSF, Army, Templeton Foundation, Office of Naval Research, and DARPA, focuses on social cognition (intentionality, mental state inferences, behavior explanations), moral psychology (cognitive and social blame, guilt, norms), and human-robot interaction (moral competence in robots, socially assistive robotics). He has written or edited five books and more than 100 other research publications.

MASSIMILIANO CAPPUCCIO

Name

Massimiliano Lorenzo Cappuccio, Assoc. Professor

Affiliation

Philosophy Department, United Arab Emiraets University, United Arab Emirates

Title

Virtuous social robots, value creation, and social recognition theory

Session

Session 6: Roboethics II

Time and location

Wednesday, February 14, 17.30-18.00, Room III UC, Aula

Abstract

In an effort to overcome a merely instrumental conception of social robots (and the moral alienation that such conception produces), I emphasize the creative dimension of robot development. I suggest considering the creator-creation/creature recognition dynamics as a paradigmatic narrative to understand how aesthetic, epistemic, and moral values can be bestowed over social robots. This narrative has a strong normative valence, as it reveals that truly non-instrumental, autonomous, intrinsic value can be ascribed to social robots if we acknowledge that they exist to play a very special role: like works of art, cultural institutions, or other outstanding creations of the human spirit, social robots do not only exist to be used by humans but also, concurrently, to mirror, reproduce, and transcend the life and the intelligence of humans.

Consistently with this narrative, I recommend social robots to be designed in ways that allow the human users to appreciate their peculiar axiological status of creature-like entities by acknowledging the features that provide them with a distinctive social identity: social robots will have individual needs, a unique history of interactions with human, artificial personality patterns reflecting this history, a non-replaceable relationship with their human companions based on such personality, and therefore the capability to express preferences and even decline some of the requests formulated by their human users. I suggest that a new, non-instrumentalist, concept of ownership should be developed so to allow a new form of social recognition that appropriately fits the semi-paradoxical complexity and asymmetry of the human-robot relationship.

About the speaker

Massimiliano L. Cappuccio is associate professor of Cognitive Science at UAE University, where he directs the Interdisciplinary Cognitive Science Lab. His work addresses theoretical issues in embodied cognition and social cognition combining analytic, phenomenological, and empirical perspectives. He is the principal investigator of two UAEU/NRF-sponsored research projects that focus on performance under pressure and human-robot interaction, respectively. He is one of the main organizers and promoters of the yearly Joint UAE Symposium on Social Robotics (JSSR). He is currently editing the *MIT Press Handbook of Embodied Cognition and Sport Psychology*.

NORBERT KRÜGER, LEON BODEN-HAGEN, AND WILLIAM KRISTIAN JUEL

Name

Norbert Krüger (PhD), Professor
Leon Bodenhagen (PhD), Assistant Professor
William Kristian Juel, Research Assistant

Affiliation

The Maersk Mc-kinney Moller Institute, University of Southern Denmark, Denmark

Title

Robots for elderly care institutions: Technical constraints and ethical questions

Session

Session 6: Roboethics II

Time and location

Wednesday, February 14, 18.00-18.30, Room III UC, Aula

Abstract

In this paper we raise questions about the ethically appropriate use of welfare robots. As engineers, we proceed from concrete examples. We present certain use cases for "welfare robots" that are supposed to help to maintain the quality of elder care in a Danish institution, while a dramatic demographic shift will lead to a significant problem to attract a sufficient number of "warm hands". In relation to these applications we describe the technical challenges in the area of "welfare robotics" and consider how these interact with the ethical dimension of the application. We formulate three hypotheses for the ethically appropriate use of welfare robots that we hope to discuss with philosophers, thereby testing the very possibility (or necessity-?) of interdisciplinary collaborations in Robophilosophy.

About the speaker

Research Assistant William Juel is working with software development and general project management on the projects SMOOTH (www.smooth-robot.dk) and Health-CAT (www.healthcat.eu). His research focus is on the development of Artificial Intelligence for mobile robots to aid in Human-Robot Interaction and robot's perception of the environment.

JEAN-PAUL PERONARD, CHRISTIAN LYSTBÆK, AND SLADJANA NØRSKOV

Names

Jean-Paul Peronard, Assoc. Professor [1]
Christian Lystbæk, Assoc. Professor [2]
Sladjana Nørskov, Assoc. Professor [3]

Affiliations

[1] Business innovation and Technology (BTECH), Aarhus University, Denmark
[2] Institut for Forretningsudvikling og Teknologi
[3] Department of Management, Aarhus University, Denmark and Department of Business Development and Technology, Aarhus University, Denmark

Title

The Valorisation of Robots in Robotics Research: A Conceptual Framework

Session

Session 7: Public Perceptions and Constructions of Robots

Time and location

Wednesday, February 14, 16.30-17.00, Room IV UC, Seminarraum III

Abstract

Recent technology developments create rich opportunities to introduce robots into the market. While the potential benefits of applying robots are extensive, the research into robot research agenda is limited. We believe that in order to develop a more thorough analysis of robotic impact on society we must go beyond user adoption and understand the influence central actors such robotic researchers and developers have on robotic images. By examine the valorisation of service robots we develop a framework for understanding the drivers for robotic research, which can be used to understand controversies surrounding the acceptance and implementation of technology in general and robotics in particular.

About the speakers

Jean-Paul Peronard is Associate Professor of Marketing and Business Innovation at Aarhus University. His research interests are cultural and social aspects of change processes in organizations and communities. Over the years he has participated in several research and innovation projects related to robotics. He views the impact of robotics on organizations of communities as an arena for interdisciplinary research and draws in his research into various disciplines such as anthropology, sociology and social psychology.

ROSANNA TERMINIO AND
EVA RIMBAU-GILABERT

Names

Rosanna Terminio, Independent Researcher[1]
Eva Rimbau-Gilabert, Senior Researcher and Phd Professor[2]

Affiliations

[1] Asecorp China – ZhongDao HR Business Consulting Co. Ltd, China
[2] Universtitat Oberta de Catalunya, Phd Programme Knlowledge Society, Spain

Title

The digitalization of the working environment: the advent of Robotics, Automation and Artificial Intelligence (RAAI) from the employees perspective – a scoping review

Session

Session 7: Public Perceptions and Constructions of Robots

Time and location

Wednesday, February 14, 17.00-17.30, Room IV UC, Seminarraum III

Abstract

Robotics, automation and artificial intelligence (RAAI) are changing how work gets done, to the point of putting 47% of existing jobs in the USA at risk of becoming redundant in 5 to 15 years. RAAI and their cognitive abilities have a potential impact on employees' sense of self-worth and career satisfaction and, in turn, on organizations and the society as a whole. In spite of the significant debate on whether there is a real risk of job losses or simply a need of re-skilling, the impact of RAAI on the individual employee has received little attention in academic literature. Therefore, we conducted a scoping review to explore the existing research and professional publications of different quality on the topic and analyze which aspects have received less attention, to properly support policymakers as well as managers' decisions. Existent research, covering different aspects, suggests that the majority of potentially affected workers is not aware nor worried about this on-going transformation process and they are not properly planning their career. Involvement of the individual in this transition has been proved to bring positive results. However, to get such individual involvement, it will be necessary to identify the correct messages to inform and motivate to the change and avoid producing protests and resistance. For a successful transition, all the stakeholders, including the labor force, have to be part of this dialogue.

About the speaker

Independent researcher on the new technologies impact on the organization and the working environment, whit a special focus on Robotics and Intelligent Manufacturing. The author works in Strategy and HR Consulting in China since 2006. Since April 2015 she is Vice Chair o HR working group of the European Chamber of Commerce in China, where she first introduced the topic of Robotics and AI impact on the job and working environment. She has written articles and held seminars on this topic for different professional publications and associations in Shanghai, China.

SOPHIE WENNERSCHEID

Name

Sophie Wennerscheid, Professor

Affiliation

Department of Literary Studies/Scandinavian Literature, Ghent University, Belgium

Title

New Networks of Desire. Intimate Human-Machine Relationships in Contemporary Science Fiction and its Implications for Robot Ethics

Session

Session 7: Public Perceptions and Constructions of Robots

Time and location

Wednesday, February 14, 17.30-18.00, Room IV UC, Seminarraum III

Abstract

Questions concerning the ethical impact of companion robots have for some time now been the subject of controversial debates both in the field of robot ethics and in science fiction film and TV studies. The aim of my paper is to expand on and to further develop these considerations into what I want to call an ethics of posthuman desire. Such an ethics will be based on insights provided by actor-network theory and critical posthumanism. In accordance with these theories, I do not regard technology as a tool we use without being affected but as something we form bonds with. These bonds restructure our world and call for a redefinition of the human person as a rela¬tional being which is inclined to extend human qualities to non-human agents, i.e. to anthropomor¬phize them. Without downplaying the risks that might arise from this kind of anthropomorphization, I argue in my paper that we can regard humans' capacity to be affected by machines as a resource of transfor¬mation. By getting in touch, (wo)man and machine, humans and posthumans both change; and thereby our con¬cepts and practices of relationality and intimacy. The Swedish TV series *Äkta Människor / Real Humans* (2012-2014) will serve as a basis for discussing the issues raised.

About the speaker

Sophie Wennerscheid is Professor of Scandinavian Literature at Ghent University, Belgium. She has published extensively on Søren Kierkegaard and 19th and 20th century Scandinavian literature. Her current research interests include contemporary science fiction literature and film, studies on sexuality and desire, multilingualism and literary urban studies. She is currently working on a book on sexuality and technology in the 21th century, covering issues as sex toy technology, internet relationships, virtual reality sex, sexrobots and new forms of (post)human reproductive technology.

KERSTIN FISCHER

Name

Kerstin Fischer, Professor MSO

Affiliation

Department of Design and Communication
University of Southern Denmark, Denmark

Title

Why Collaborative Robots Must Be Social Actors

Session

Session 7: Public Perceptions and Constructions of Robots

Time and location

Wednesday, February 14, 18.00-18.30, Room IV UC, Seminarraum III

Abstract

This position paper argues that we do not have much choice but to construe collaborative robots as social actors. Social cues, including emotional displays, serve coordination functions in human interaction and therefore have to be used, even by robots, in order for long-term collaboration to succeed.

About the speaker

Kerstin Fischer is professor for Language and Technology Interaction at the University of Southern Denmark. She teaches communication design, user studies and human-technology interaction, and her research concerns verbal human-robot interaction, the study of language and language learning using robots and issues of timing and contingency in human-robot interaction.

BILJANA BIBA VICKOVIĆ ET AL.

Names

Biljana Biba Vicković, Mag.art[1,2]
Svemir Popić[2], Miloš D Jovanović[2], Aleksandar Rodić[2]

Affiliations

[1] ULUS member in nationally determined independent artistic practice in the field of expanded media • Reg. No.953/1999/ULUS Association des Artists plastiques de Serbie • Suluj AIAP • UNESCO since 1919.•
[2] University of Belgrade, Mihajlo Pupin Institute, Robotics Laboratory Belgrade, Serbia

Title

Dragon Robot – innovative socially-useful robotic work of art that combines recycling and cultural awareness

Session

Session 8: Social Change

Time and location

Friday, February 16, 10.30-11.00, Room I UC Hörsaal C 1

Abstract

Dragon Robot - robotic work of art is designed to influence the environmental and cultural awareness of citizens. The Dragon robot is a fantasy creation in bronze with a striking appearance, with its surreal form. The first Belgrade solar powered prototype of Dragon Robot was set up in 2009 in front of the municipality building of Vračar, as the first stage of the project. This funny neighbor has a daily communication with 200,000 citizens a year. Dragon's voice message says to you "Hello, and asks you if you have some cans for him, he says:I'm hungry". After being approached by the user, the robot opens his beak to make a space for a can to be placed in it, by having a comment: "Yum, yum, you can drop it down inhere." Once your can is inserted robot says "Here is your ticket and thank you for taking care of our environment." In the second stage named Dragons Trails project planned for 2018-2020 a new prototype of Dragon will be placed on the museums grounds, in 4 European countries. They will be used as a stage for examining European Dragons' myths and legends. Robot has a chat with tourists when tourists visit him, and when he swallows the can, robot gives them a ticket with a code to log in to device with the 3D glasses, to watch "3D museum's legends and myths". The Dragon's tail will have camera. For all tail movements we will use hyper redundant manipulator. The tourists will move tail with mobile application Selfie option in the Dragon arms.

About the speakers

Biba Vicković has gained interactive media art experience in New York in 2000-2003 starting with the participation at the Film Festival New Haven FFNH at Yale University. With Animax Multimedia theater she received an Honorary Mention in Prix Art Electronica 2002 for FX Factory. Since 2015 she has been active on the Project innovative methodologies at University of Arts in Belgrade. In 2017 she started as the ECPD Coordinator for Art and Innovation, University for Peace established by the United Nation, Croatia. Till 2017 she realized at international level: 6 interact. projects; 4 short fantasy movies; 4 performances; 1 authorized Biennale; Collection of 50 oil paintings, more than 500 graphic drawings.

JAANA PARVIAINEN AND TUOMO SÄRKIKOSKI

Names

Jaana Parviainen, Senior Researcher
Tuomo Särkikoski, Senior Researcher

Affiliation

Faculty of Social Sciences, University of Tampere, Finland

Title

Growing Old in Robotic Cities

Session

Session 8: Social Change

Time and location

Friday, February 16, 11.00-11.30, Room I UC Hörsaal C 1

Abstract

In the paper, we discuss mobility and immobility as cultural values that characterise the lifestyles of retired old adults in the context of the digitalization and robotisation of urban environments. Using the term 'kinetic values', we mean how living on the move or being immobile are seen to represent either positive or negative attributes depending on an individual's age, ethnic background, social class, gender or education. By using EU strategies on the developments of smart cities and robotisation as illustrative research material, we consider how the meanings of mobility and immobility signify aging and segregate elderly people into different social groups. This implies, for example, that 'grey panthers' may designate a group of active seniors adapting easily new technologies while more immobile and fragile older citizens are seen rooted in routines resisting new devices. Applying the phenomenology of movement and recent discussions on service robotics, we examine assistive robotics and what kind of urban choreographies it can provide for elderly people. We come to the conclusion that the reconfiguration of robotic systems may leave some elderly people "imprisoned" and socially trapped in their smart homes within robotized and monitoring environments.

About the speakers

Dr. **Jaana Parviainen** received her doctorate in philosophy from the University of Tampere. Her research interests include the philosophy of technology especially relating to embodiment, movement and urban environment.

Dr. **Tuomo Särkikoski** has a professional background in engineering and he has a degree in social sciences (sociology) from the University of Jyväskylä and a doctorate in Nordic history from the University of Helsinki.

GLENDA HANNIBAL AND SØREN SCHACK ANDERSEN

Names

Glenda Hannibal, MA[1]
Søren Schack Andersen, PhD Fellow[2]

Affiliations

[1] Independent Researcher, Denmark
[2] Department of Culture and Society, Aarhus University, Denmark

Title

Acknowledgement of Workers in a Robot-Supported Society

Session

Session 8: Social Change

Time and location

Friday, February 16, 11.30-12.00, Room I UC Hörsaal C 1

Abstract

In our paper, we aim to explicate a problematic distinction between a specific task and the individual person performing this task in the workplace. We argue that this distinction distorts our understanding of acknowledgement of work in a near-future society where robots will be introduced into workplaces. Furthermore, the distinction itself provides a problematic premise to be used both in arguments for and against the implementation of robots in the workplace, depending on the interpretation of the distinction. Thus, we aim to illustrate that, given the otherwise paradoxical premise, either one of the interpretations of the distinction must be wrong (or at the very least inapplicable when it comes to robots), or the distinction itself is faulty. In addition, we will illustrate that, in all interpretations of the premise, the implementation of robots in the workplace will have significant implications on the overall acknowledgement of work, and in consequence the social recognition of the individuals who either have to work with the robot or who are re-placed by the robot.

About the speakers

Glenda Hannibal holds an MA in Philosophy from Aarhus University and is currently an independent researcher with a focus on social robotics and Human-Robot Interaction mainly from the perspectives of Metaphysics, Epistemology and Philosophy of Language.

Søren Schack Andersen is a PhD fellow in Philosophy from Aarhus University and has been working on the relationship between humans and robots, in particular pertaining to the Uncanny Valley phenomenon.

MARTIM BRANDAO

Name

Martim Brandao, Post-doctoral Researcher

Affiliation

Research Institute for Science and Engineering,
Waseda University, Japan

Title

Moral diversity and equality of opportunity for algorithms in autonomous vehicles

Session

Session 9: Machine Ethics I

Time and location

Friday, February 16, 10.30-11.00, Room III UC, Aula

Abstract

This paper addresses two issues with the development of ethical algorithms for autonomous vehicles. One is that of uncertainty in the choice of ethical theories and utility functions. Using notions of moral diversity, normative uncertainty, and autonomy, we argue that each vehicle user should be allowed to choose the ethical views by which the vehicle should act. We then deal with the issue of indirect discrimination in ethical algorithms. Here we argue that equality of opportunity is a helpful concept, which could be applied as an algorithm constraint to avoid discrimination on protected characteristics.

About the speaker

Martim Brandao is a post-doctoral researcher working on planning and perception problems in robotics. He is also interested in the social impacts and ethical problems of technology in general and robotics and AI in particular.

ARTO LAITINEN

Name	Arto Laitinen, Professor
Affiliation	Faculty of Social Sciences University of Tampere, Finland
Title	**What principles for moral machines?**
Session	Session 9: Machine Ethics I
Time and location	Friday, February 16, 11.00-11.30, Room III UC, Aula

Abstract

This paper examines four kinds of principles for machine morality. (1) exceptionless principles covering all cases and features (e.g. Kantianism, consequentialism); 2) a plurality of midlevel prima facie -principles each concerning one act-in-a-situation type (Ross; Beauchamp&Childress; applied to robotics by Anderson&Anderson), as well as their typical enabling and disabling conditions; 3) priority principles concerning the midlevel principles (e.g. F. M. Kamm; the ordering of Asimov's Laws); 4), overall judgements in situations when everything relevant is taken into account and the situation is closed by a "that's it"-consideration; stressed by particularists (Dancy, cf. Guarini). The paper argues that principles of type (2) are epistemologically most robust and they are possibly useful even in the absence of overall judgements of type (4).

About the speaker

Arto Laitinen is Deputy Leader in the project Robotics and Future of Welfare Services (ROSE), funded by the Strategic Research Council of Academy of Finland; and Professor of Social Philosophy at University of Tampere.

VANESSA SCHÄFFNER

Name

Vanessa Schäffner, M.Sc

Affiliation

Global Ethic Institute, University of Tübingen, Germany

Title

Caught Up in Ethical Dilemmas: an Adapted Consequentialist Perspective on Self-driving Vehicles

Session

Session 9: Machine Ethics I

Time and location

Friday, February 16, 11.30-12.00, Room III UC, Aula

Abstract

Autonomous driving is one of the most controversially discussed issues of contemporary public interest and continues to keep various global players in the automobile as well as the supplier industry in suspense. Although being potentially able to reduce the number of severe road accidents, self-driving vehicles are unlikely to avoid crashes completely and will therefore face situations where harming someone cannot be avoided. This paper addresses the need for an investigation from the perspective of normative ethics regarding the programming of crash-optimisation algorithms: how should autonomous vehicles react in dilemma situations? Which ethical principles are suitable to guide their decisions and to morally justify them in the end? This paper contributes to the pertinent literature, which has identified various difficulties of applying classical utilitarianism in the context of self-driving vehicles, by suggesting a consequentialist approach that is adapted to the specific characteristics of dilemmatic driving scenarios. For this purpose, it explores the applicability of an adapted utilitarian view and analyses in what way it is suitable to compensate for the shortcomings of utilitarianism revealed in literature.

About the speaker

Vanessa Schäffner is a PhD candidate in Philosophy at the University of Tübingen, Germany. She obtained an MSc in Economics and Management at the University of Ulm in 2014 and an MA in Philosophy at the University of Tübingen in 2016. Her research interests include concerns arising at the intersection of philosophy, information technology and economics, with a special emphasis on ethical issues pertaining to autonomous driving. She is currently working on an investigation into various philosophical approaches addressing solutions to moral dilemmas self-driving vehicles are involved in, i.e. situations where harming someone is inevitable.

WESSEL REIJERS

Name	Wessel Reijers, PhD Researcher
Affiliation	ADAPT Centre, School of Computing, Dublin City University, Ireland
Title	**Robots: in between labour and practice**
Session	Session 10: Artificial Sociality III
Time and location	Friday, February 16, 10.30-11.00, Room IV UC, Seminarraum III

Abstract

In this paper, I argue that we should understand robots according to an adequate theory of praxis, by not merely considering what they are (machines, artefacts, systems) but also what they do. This theory of praxis departs from Arendt's distinction between labour, work and action, but turns towards Ricoeur's epistemological hermeneutics to render "practice" intelligible. This approach offers a philosophical framework that deals with the neglect of language and the social in postphenomenological accounts of human-robot relations. Using Ricoeur's work, what robots do can be characterised by using a narrative theory that integrates basic actions, action-chains and practices into a coherent conceptual framework. Based on this framework, I argue that although robots can be said to engage in basic actions and action-chains, they are not themselves "practitioners" but rather "co-authors" of practices.

About the speaker

Wessel Reijers is a PhD researcher at the ADAPT Centre, School of Computing, Dublin City University in Ireland. His main research focuses on constructing a novel method for practicing ethics in research and innovation. He has published on the topics of hermeneutic philosophy of technology, blockchain technologies, social contract theory, the digital commons and ethics in research and innovation.

PHILIP BREY

Name

Philip Brey, full professor

Affiliation

Department of philosophy
University of Twente, the Netherlands

Title

Should Robots be Equipped with Emotions?

Session

Session 10: Artificial Sociality III

Time and location

Friday, February 16, 11.00-11.30, Room IV UC, Seminarraum III

Abstract

In this paper, I will consider arguments for and against the possession and expression of emotions by social robots, and I will arrive at a reasoned proposal for future policies regarding the design and use of robots with emotions.

The development of robots that have the ability to perceive, express and reason with emotions has become an important goal in social robotics. As of today, many researchers working in social robotics have become convinced that developing robots with such emotion capabilities is beneficial and even necessary for the field to make progress. In this paper, however, I want to critically examine this belief, analyzing the arguments for and against emotion capabilities in social robots. I will distinguish between four ways in which robots can be equipped with emotion capabilities: emotion recognition, reasoning about emotions, having emotions that affect reasoning, and expressing emotions in behavior. I will argue that emotion recognition and reasoning about emotions are mostly beneficial qualities that social robots should ideally have. Having emotions, in the form of being able to have its cognitive processes be affected by emotional states or expressing emotions in behavior, is a more controversial quality of social robots. I will examine arguments for and two against robots possessing emotions, and will derive policy implications from my examination.

About the speaker

Philip Brey is full professor of philosophy of technology at the University of Twente in the Netherlands. He has published extensively in the areas of ethics of technology and responsible research and innovation. He is president of the *International Society for Ethics and Information Technology*, a former president of the *Society for Philosophy and Technology*, and a member of the editorial board of over ten leading journals in his field. He currently coordinates the SIENNA project, a Horizon 2020-funded project on the ethical and human rights aspects of emerging technologies, including human genomics, human enhancement, robotics and artificial intelligence.

REBEKKA SOMA AND JO HERSTAD

Names

Rebekka Soma, PhD-candidate
Jo Herstad, Assoc. Professor

Affiliation

Department of informatics
University of Oslo, Norway

Title

Turning away from an anthropocentric view on robotics

Session

Session 10: Artificial Sociality III

Time and location

Friday, February 16, 11.30-12.00, Room IV UC, Seminarraum III

Abstract

The field of artificial intelligence and robotics has long adapted an anthropocentric view, putting the intelligence structures of humans as the guiding requirements for developing artificial intelligence. Using Jakob von Uexküll's theory of Umwelt and subjectivity, this paper aims to explain why we need to turn away from the anthropocentric view on robots.

About the speakers

Rebekka Soma's research interests are right now focused on the relationship between humans and robots—the meeting and interaction between the two. She am also deeply interested in theories of phenomenology, and how they can be applied as a way of understanding how humans (and perhaps robots?) meet and interact with the objects and subjects that make up our surrounding environment.

The main research interest of **Jo Herstad** is with the field of Human Computer Interaction.   We are currently working with human centered design of robots for stay at home elderly in a project called MECS (Multimodal Elderly Care Systems project).

LÉONARD VAN ROMPAEY

Name

Léonard Van Rompaey, PhD fellow

Affiliation

Centre for international law, conflict and crisis
Faculty of law, University of Copenhagen, Denmark

Title

Incompatibilities between cognitive law and autonomous systems

Session

Session 11: Machine Ethics II

Time and location

Friday, February 16, 14.30-15.00, Room III UC, Aula

Abstract

Law as a product of human minds is necessarily bound by our cognitive capacities, and this cognitive shaping might make law incompatible with autonomous systems. This article explores what is anthropocentric from a cognitive sciences perspective in our legal system, and whether law and regulation are too anthropocentric to be effectively applied by robots. What is human about the law? Robots offer us a push back from ourselves and allow us to take a new look on what it means to be human, as well as to see how our legal system is shaped in our image.

When using cognitive sciences to analyse law, it can be observed that our biased perception build our legal expectations and consciously inaccessible biases frame the decisions we make to create or apply law. In turn, law modifies the functioning of our brains on a daily basis, and forge our expectations and mental functioning on the long term. Because law is engrained in those cognitive specificities, a compatible cognitive functioning is necessary to apply and comply to the law, and this cognitively-compatible application of law becomes the foundation of a just and fair output of law. Those few elements explain why law might not be fully compatible with autonomous systems making decisions to apply the law.

About the speaker

The central theme that unites Léonard's research and professional experiences is that of defence, security and international relations. The topics that he has developed through his research follow this path and have been centred on new technologies of war: autonomous weapons, drones, and cyber weapons.

His PhD project focuses on Autonomous Weapons by trying to understand how autonomy within machines will work out with the anthropocentric nature of Law.

MICHAŁ KLINCEWICZ AND LILY FRANK

Name

Dr. Michał Klincewicz, Asst. Professor
Lily Frank

Affiliation

Department of Cognitive Science, Institute of Philosophy
Jagiellonian University, Poland

Title

Making Metaethics Work for AI

Session

Session 11: Machine Ethics II

Time and location

Friday, February 16, 15.00-15.30, Room III UC, Aula

Abstract

In this paper we examine the practical consequences of design and use of artificial intelligence in light of current state of art in philosophical metaethics. In particular we focus on AI that will be tasked with making explicitly moral decisions, serving as moral advisors, or contributing to morally charged decision making processes. Engineering and design decisions in this domain often come with tacit or explicit metaethical assumptions, including but not limited to: nature of moral judgment, how to characterize moral motivation, the existence of mind-independent moral properties, status of moral epistemology, and what differentiates the moral domain from all others. We analyse the systematic relationship between metaethical positions along the three main dimensions of difference: realism/anti-realism, cognitivism/non-cognitivism, and internalism/externalism and provide a hierarchy of risk and uncertainty associated with each one. We pay special attention to the limitations to human risk perception and assessment, such as the fairness and framing effects, the inverse relationship between risk and benefit, probability neglect, and unrealistic optimism which are well documented in the decision theory and psychological literature. We then offer some recommendations for the kinds of metaethics that should inform AI engineering and algorithm design.

About the speaker

Michał Klincewicz is an Assistant Professor in the department of cognitive science, Institute of Philosophy of Jagiellonian University. He was a post-doctoral researcher in the Berlin School of Mind and Brain and received his PhD in philosophy at the Graduate Center, City University of New York. His publications are mainly on the temporal aspects of cognition and on the ethical dimension of artificial intelligence, including autonomous weapon systems, moral enhancement with AI, and metaethics in AI.

VIRGINIA DIGNUM ET AL.

Names

Virginia Dignum, Assoc. Professor[1]
Frank Dignum, Assoc. Professor[2]
Aurélie Clodic, Research Engineer[3]
Javier Vázquez-Salceda, Assoc. Professor[4]
Manuel Gentile, Researcher[5]

Affiliations

[1] Delft University of Technology, Netherlands
[2] Utrecht University, Utrecht, The Netherlands
[3] LAAS-CNRS, Université de Toulouse, CNRS, Toulouse, France
[4] Universitat Politècnica de Catalunya (UPC), Spain
[5] Istituto per le Tecnologie Didattiche, National Research Council of Italy, Italy

Title

Design for Values for Social Robot Architectures

Session

Session 11: Machine Ethics II

Time and location

Friday, February 16, 15.30-16.00, Room III UC, Aula

Abstract

As robots increasingly act in everyday environments, they are expected to demonstrate socially acceptable behaviors and to follow social norms. This means that they will need to understand the societal and ethical impact of their actions and interactions in the sociocultural context in which they operate. Developing social robots can benefit from a Design for Values, which includes explicit activities for the identification of core societal values to be uphold by the robot, and the social norms that hold in the domain, and methods to link these values and social norms to system requirements. In this presentation, we discuss the concept of ethical decision making and how to achieve trust. Responsible AI rests on three main pillars: Accountability, Responsibility, and Transparency (ART). Responsibility is core to development of social AI and robots. Responsibility refers to the role of people as they develop, manufacture, sell, and use these systems, but also to the capability of the systems to answer for their decisions and identify errors or unexpected results. Accountability, is the capability of explaining and answering for one's own actions, and is associated with the ability for systems to explain their actions and decisions. Transparency, refers to the need to describe, inspect, and reproduce the mechanisms through which systems make decisions and learn to adapt to their environment, and to the governance of the data used or created.

About the speakers

Aurélie Clodic received a PhD in robotics in 2007 for which she elaborated and implemented ingredients for human-robot joint activity in several contexts.
Virginia Dignum's research focuses on value-sensitive design of intelligent systems, in particular on the formalisation of ethical and normative behaviours and social interactions.
Frank Dignum is working on social aspects of software agents with applications in serious gaming, social simulations and robotics.
Javier Vázquez-Salceda's research is focused on theoretical and applied issues of behavioural modelling, normative systems, software and robotic agents' autonomy and social control.
Manuel Gentile's research interests concern technology enhanced learning (TEL). He is working on the application of the theory of social practice in the education, specifically to design intelligent virtual agent for serious games.

SATOMI SUGIYAMA

Name	Satomi Sugiyama, Assoc. Professor
Affiliation	Department of Communication and Media Studies Franklin University Switzerland , Switzerland
Title	**Exploration of expected interaction norms with a social robot in everday life: A case of twitter analysis in Japan**
Session	Session 11: Machine Ethics II
Time and location	Friday, February 16, 16.00-16.30, Room III UC, Aula

Abstract

The purpose of this paper is twofold; Firstly, it seeks to consider interaction patterns that people expect from robots in everyday life. Secondly, it explores emerging symbolic meanings of social robots by revisiting the theory of *Apparatgeist* (Katz & Aakhus, 2002), which was originally developed to analyze the emerging communication patterns of mobile communication. In this endeavor, the present paper focuses on one of the well-known consumer social robots, Pepper, and how people are reacting to its/his presence in Japanese public places as observed in the social media Twitter. Ultimately, the paper seeks to illuminate a future design direction of social robots that can co-exist, co-present, or even co-habit with humans.

About the speaker

Satomi Sugiyama (Ph.D. Rutgers University) is associate professor of Communication and Media Studies at Franklin University Switzerland. Her research and teaching interests lie at the intersection of communication technology (particularly mobile communication technology and social robots), interpersonal relationships, culture, and fashion studies. She has been an active researcher and collaborator in her field and has given numerous conference presentations and talks including TEDx Lugano. Her work has appeared in edited books and academic journals such as New Media and Society, First Monday, and International Journal of Social Robotics. She is a member of euRobotics topic group "Socially Intelligent Robots and Societal Application," and gave a talk at a workshop organized by the topic group at the European Robotics Forum 2017. She is currently working on manuscripts on perceptions toward social robots, fashion and wearable technologies, and the *emoji* use among youth. Recent publication: The automation of taste: A theoretical exploration of mobile ICTs and social robots in the context of music consumption. *International Journal of Social Robotics, 407-416* (2015, with Nello Barile).

WORKSHOPS TALKS

Workshop 1: Transdisciplinary Reflections on Social Robotics in Academia and Beyond
Workshop 2: Machines Without Humans - Post-robotics
Workshop 3: Working with and Alongside Robots - Forms and Modes of Co-Working
Workshop 4: Phronesis and Computation - Current Perspectives
Workshop 5: Political Economy of Robots
Workshop 6: The use of Social Robots in Key Business Activities
Workshop 7: Is Machine Consciousness Necessary for True AI Ethics
Workshop 8: Exploring Ethical Responsibility Through Democratic Participation and Expert Panel Discussion
Workshop 9: Yumi in Action! Ethics and Engineering as Transdisciplinary Robotics Performance
Workshop 10: Cultural Spaces, Humanoid Robotics and Human Work Performance and Debate
Workshop 11: Moral Status of Robots
Workshop 12: Robotics in Japan - Local, Global and ''Glocal'' Influences and Applications
Workshop 13: Exploring Responsible Robotics Hands-On [colon] A conference Lab on Three Use Cases
Workshop 14: Self-Driving Fast Towards Us - Social and Ethical Implications of Autonomous Vehicles

WORKSHOP 1

Names

Glenda Hannibal, Independent Researcher
Felix Lindner, Lecturer[1]

Affiliation

[1] University of Freiburg, Germany

Title

Workshop 1: Transdisciplinary Reflections on Social Robotics in Academia and Beyond

Time and location

Wednesday, February 14, 09.00-12.00, Room I UC, Hörsaal C 1

Abstract

Robo-philosophy 2018 is the third of its kind and with the ambition to include the research and insights from disciplines other than philosophy the themes of the conference are broad and open for various interpretations. Inclusion of other disciplines and perspectives can, however, also be achieved by ensuring that the conference participants get a chance to actively engage in a dialogue with each other in smaller groups where they reflect on how to benefit and advance social robotics with their respective knowledge and competences. In this sense the focus in this workshop is placed on creating a concrete setting in which the conference participants go from being passive listeners to engaging contributors in the task of thinking, engaging, and integrating social robotics into society. Considering this perspective the workshop aims to bring participants of the conference together to think actively about how to make social robotics more transdisciplinary after receiving input from the invited speakers. Among other questions, the discussion will include reflections on the possible benefits that transdisciplinarity will have for the development of social robotics as a research field and what needs to be done to establish a transdisciplinary research agenda and methodology for social robotics.

ERICH PREM

Name	Erich Prem, CEO
Affiliation	eutema GmbH and University of Vienna
Title	**Strategic components for social robotics research: Lessons learned from transdisciplinarity in embodied AI and art**
Session	Workshop 1: Transdisciplinary Reflections on Social Robots in Academia and Beyond
Time and location	Wednesday, February 14, 09.00-12.00, Room I UC, Hörsaal C 1

Abstract

It is striking how visions of the humanoid robot as presented in science fiction utopias and dystopias are driving social robotics research or at least are clearly present in some social robotics research programmes. This is even more surprising since recent successful robotics research took inspiration from biology in the form of insects and other animals. I propose that the history of embodied AI and behavior-based robotics can be regarded a success story of robotics research that brought together researchers from a broad range of disciplines. I will point out some historical highlights and challenges about the collaboration of researchers in computer science, electrical engineering, ethology, biology, philosophy and other fields. This flourishing field in the 1980s led to the advent of commercially successful robots such as autonomous vacuum cleaners and lawn mowers that are now commonplace and often seamlessly interact with humans. Such interdisciplinarity provides a huge challenge for academia, but also for research agencies and administration. Going even beyond academic disciplines, I will also present insights from the more recent interaction of art and robotics and propose elements of a methodology for productive transdisciplinary work in social robotics. I suggest taking inspiration from the animal world rather than views from science fiction to approach the human-robot relation more productively.

About the speaker

Erich Prem received his Dipl.Ing. in informatics and Dr. tech. from Technical University of Vienna and his Dr. phil. from University of Vienna. He received his MBA in General Management from Donau University. Since 2001, Erich is CEO of eutema, a strategic research consultancy located in Vienna. His research interests include philosophical aspects of innovation, robotics, Artificial Intelligence, epistemology, and innovation research. His work is often at the interface of industry, academia, and research policy. Erich is a lecturer at the University of Vienna and at the Vienna University of Technology.

JOHANNA SEIBT, CHRISTINA VESTER-GÅRD, AND MALENE FLENSBORG DAMHOLDT

Names

Johanna Seibt, Professor
Christina Vestergård, Postdoctoral Researcher
Malene Flensborg Damholdt, Asst. Professor

Affiliation

Research Unit for Robophilosophy, Department for Philosophy and the History of Ideas, Aarhus University, Denmark

Title

Integrative Social Robotics, Transdisciplinarity, and Value-Driven Design

Session

Workshop 1: Transdisciplinary Reflections on Social Robots in Academia and Beyond

Time and location

Wednesday, February 14, 09.00-12.00, Room I UC, Hörsaal C 1

Abstract

The talk will introduce the RDD (research, design, and development process) paradigm of Integrative Social Robotics (ISR; Seibt 2016), relate it to "value-sensitive design'"(Friedman, Kahn, Borning 2002) and "design for values" (van den Hoven 2005) and then discuss whether and in which sense ISR can aspire to generate a "transdisciplinary research framework" for social robotics applications. ISR aims to address the virtually impossible task of developing social robotics applications in a responsible fashion. Since human socio-cultural interactions are the most complex reality we know, the RDD in social robotics requires maximal interdisciplinary scope; moreover value experience is not only complex, but also highly contextual—stable projections of how people will experience an application are currently not possible. This creates a gridlock of the "regulation problem" and the "description project" in social robots. The model of ISR is to address this gridlock, e.g., by intertwining a mixed method approach (i.e., conducting experimental, quantitative, qualitative, and phenomenological research for the same envisaged application) with conceptual and axiological analysis. We illustrate some of the difficulties of this approach as we currently have encountered them in our research, and in relation to the methodological discussion in HRI research.   In conclusion we consider possible implications of these difficulties for the form of interdisciplinarity of ISR.

About the speaker

Johanna Seibt is the coordinator of the Robophilosophy Conference Series (together with Marco Nørskov, Aarhus University). She works on the ontology of human-robot interactions and is the PI of the research project on Integrative Social Robotics (INSOR) supported by the Carlsberg Foundation with 25 researchers from 11 disciplines.

Christina Vestergård is a member of INSOR; she is an anthropologist specializing in the analysis of public institutions, conflict mediations, perceived justice, and HRI.

Malene Damholdt (Department of Psychology, Aarhus University) is a member of INSOR; her main research interests in individual differences, neuropsychology, geropsychology and HRI. Her HRI research interest especially focus on attitudes towards robots and how these are influenced and determined by individual differences.

WORKSHOP 2

Names

Maike Klein, Doctoral Researcher[1]
Simon Hoher, Senior Researcher[2]
Simone Kimpeler, Director and Senior Researcher[3]
Maximilian Lehner, Doctoral Researcher[4]

Affiliations

[1] University of Stuttgart, Germany
[2] University of Applied Sciences Salzburg, Austria
[3] Competence Center Foresight, Fraunhofer Institute for Systems and Innovation Research ISI, Germany
[4] KU Linz, Austria

Title

Workshop 2: Machines Without Humans // Post-robotics

Time and location

Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2

Abstract

Debates around robots, both scientific and non-scientific, mostly put the human being in their focus. This is important and necessary to produce machines that humans can operate and interact with, and to do responsible research. We think, however, that the phenomenon of robots, and generally machines, is only fully comprehensible if we, the observers, step back and try to understand machines from another, unusual perspective: the machines themselves. We invite participants of this workshop to reflect upon machines, and especially robots, from a machine / robot point of view. What do robots do when we are not around? How do they spend the end of their working day? What do they appreciate or prefer? How, and what, do they communicate among each other? For instance, what were the two Facebook bots conferring about before some human turned them off? It is not our goal to design a post-human society but rather to explore what it means for our society not to consider robots only as agents that ought to be designed to carry out human tasks. In our opinion, we should take robots as robots seriously, because we often must rely upon them for good reasons. They help building our machines, guides us through art exhibitions, and assists in nursing. Thus, within this workshop, we would like to take a closer look at the robots themselves. We invite the participants to think away from a barely functional point of view, to think about the idea that robots are more than just the functional "partner" of humans.

LUISA DAMIANO

Name	Luisa Damiano, Assoc. Professor
Affiliation	University of Messina, Italy
Title	**Robots as social partners for humans. The issue of their social acceptance in different cultures**
Session	Workshop 2: Machines Without Humans // Post-robotics
Time and location	Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2

Abstract

Producing robots capable of acting as "social partners" for humans is the most ambitious goal of Social Robotics. To achieve this goal, specialists in this field are engaged in research directed towards endowing these artifacts with "social presence" and "social skills" able to engage humans in comfortable and potentially long-lasting social interaction. One of the main challenges that this frontier research has to address is the cultural differentiation of social robots, to facilitate their "social acceptance", and, on this basis, their "social integration" in specific cultural contexts. This talk will focus on this challenge. It will propose an epistemological analysis of current views of the cultural dimension of social acceptance of robots, in order to define the ways in which these views are shaping contemporary social robots, and, through them, the raising human-robot sociality.

About the speaker

Luisa Damiano is associate professor of Logic and Philosophy of Science at the University of Messina. She holds a PhD in Epistemology of Complex Systems from the University of Bergamo and has been researching at different universities, including Ritsumeikan University, University of Rome 3, University of Hertfordshire, and University of Paris 6. Her research interests include Complex Systems Theories, Epistemology of the Sciences of the Artificial, Methods of Human-centric Assistive Technology Design, and Methods of Philosophical Counseling. Her book "Vivre avec les robots" (Seuil 2016) that she co-authored with P. Dumouchel has been translated for Harvard University Press.

SIMON HOHER AND FLORIAN JAENSCH

Names

Simon Hoher, Senior Researcher [1]
Florian Jaensch, Research Assistant [2]

Affiliations

[1] University of Applied Sciences Salzburg, Austria
[2] Universität Stuttgart, Germany

Title

Self-learning material flow systems

Session

Workshop 2: Machines without humans // Post-robotics

Time and location

Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2

Abstract

Material flow controls coordinate the providing of materials at the right time and in the right place in the desired quantity and quality. Every production system needs a highly optimized material flow between the single productions steps. The classical material flow control is pyramid-shaped. A hierarchical structure consisting of system control, subsystem control, area control and element control realizes the desired material flow.

Future material flow controls will have an intensive communication between element controllers. Autonomously acting agents have the ability to control single material flow elements. Due to the networking of the agents and a machine learning approach, the agent system is now able to self-organize the correct material flow.

In this talk, this change from classical material flow controls to the self-learning controls will be discussed and validated. The material flow of the future is no longer controlled by humans (through the programming of controls), but the agent system learns autonomously to organize it.

About the speakers

Simon Hoher is professor of mechatronics in the program on information technologies and systems management at the University of Applied Sciences Salzburg since October 2017. Since 2013, he conducted various national and international projects on Industry 4.0 (e.g. BMBF RobIN 4.0, EU FP7 ReBorn, BMWi ReApp) at Industrielle Steuerungstechnik GmbH, Stuttgart. Together with industrial partners he developed new concepts of robust data collection and evaluation for production facilities. From 2009 to 2013, Simon Hoher was doctoral researcher at the Institute for Control Engineering of Machine Tools and Manufacturing Units, University of Stuttgart. His dissertation was on mechatronics of material flow.

Florian Jaensch received the B.Sc. (2013) and the M.Sc. (2015) in mechanical engineering from the Karlsruhe Institute of Technology. He joined the Institute for Control Engineering of Machine Tools and Manufacturing Units in 2016 as a research assistant. He is part of the research group Virtual Methods for Production Engineering and is currently working in a project with Soft-Tissue Robotics and machine learning for digital production systems.

SIMONE KIMPELER

Name	Simone Kimpeler, Director and Senior Researcher [1]
Affiliation	[1] Competence Center Foresight, Fraunhofer Institute for Systems and Innovation Research ISI, Karlsruhe, Germany
Title	**Future Session**
Session	Workshop 2: Machines Without Humans // Post-robotics
Time and location	Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2
Abstract	Small workshop organized in world-cafe style, starting with the talks as inspiring impulses and then switching to group work modus in which participants share their visions and discuss opportunities and challenges of the convergence of humans and machines.
About the speaker	Dr. Simone Kimpeler is Head of Competence Center Foresight at Fraunhofer ISI, Germany. After a Doctorate in Communication Research received from University of Münster, Germany, she started as researcher / project manager at Fraunhofer ISI in 2000. Since 2013 she is leading the Foresight team. Her work focuses on future-oriented socio-technological analysis, in particular scenario development and analysis, stakeholder dialogues and visioning processes.

MAIKE KLEIN AND MAXIMILIAN LEHNER

Names

Maike Klein, Doctoral Researcher [1]
Maximilian Lehner, Doctoral Researcher [2]

Affiliations

[1] Institute of Philosophy, University of Stuttgart, Germany
[2] Institute of Contemporary Arts and Media, KU Linz, Austria

Title

Aesthetic Preferences of Machines

Session

Workshop 2: Machines Without Humans // Post-robotics

Time and location

Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2

Abstract

Nowadays, machines are already present as agents in the art world. They act as curators, artists, and recipients, influenced by the data engineers give to them. On these grounds, machines shape human experience in what and how they see. This raises both well-known questions about the nature of art and curating and new questions about changing human experiences. But how far can machines really go in these fields? Can the aesthetic classifications they make be traced back to mechanical aesthetic preferences?

About the speakers

Maike Klein is a doctoral researcher in Philosophy at the University of Stuttgart, after having completed a binational M. A. from the Universities of Stuttgart and Paris 8 Vincennes-Saint Denis. In her thesis on the topic of "Emotions in artificial systems", she mainly considers the links between Philosophy, Psychology, and Computer Science.

Maximilian Lehner is a doctoral researcher at KU Linz (Institute of Contemporary Arts and Media) after completing an M.A. in cultural philosophy at the universities of Stuttgart and Paris 8 Vincennes-Saint Denis. His research interests are in artistic research practices and in co-operations between art and technology. He is also co-founder of the art agency The Real Office in Stuttgart and exhibited in "Time-Space-Existence" at La Biennale Architettura 2016 with ISA STEIN Studio.

FABIAN KÜHFUß

Name	Fabian Kühfuß, Media Artist
Affiliation	The City of Stuttgart
Title	**Nintendogs**
Session	Workshop 2: Machines Without Humans // Post-robotics
Time and location	Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2

Abstract

Nintendogs is a wall installation. An apparatus made of electrical engines and metal bars moves a Gameboy console in order to make a touch screen pencil stroke a virtual puppy.
Do robots dream of virtual puppies? The Gameboy game "Nintendogs" is about training puppies. Additionally, and occasionally it seems crucial, simulating spare time with virtual pets is an important part of the game. The installation "Nintendogs" asks therefore: Will artificial empathy play any role one day? Does a virtual dog recognize that it's stroked by a robot? Can a virtual dog sympathize with this robot?

About the speaker

Fabian Kühfuß works as media artist in Stuttgart after studying visual arts at Freie Kunstakademie Nürtingen (FKN). He received a project grant by the Karin-Abt-Straubinger-Stiftung (2012), a studio grant by the City of Stuttgart (2015-19), and won the 27th Stuttgarter Filmwinter prize for "media in space." Since 2015, he is a lecturer in FKN's New Media Class. He led workshops at International Festival of Animated Film Stuttgart and with Thomas C. Weber and Frieder Schlaich in Zimbabwe.

FEMKE SNELTING

Name	Femke Snelting, Artist and Designer
Affiliation	Piet Zwart Institute, the Netherlands
Title	**Possible Bodies**
Session	Workshop 2: Machines Without Humans // Post-robotics
Time and location	Wednesday, February 14, 09.00-12.00, Room II UC, Hörsaal C 2

Abstract

How do human and machinic movements co-construct each other? In what way are their respective gestures and behaviours shaped through the apparatuses at work? This contribution looks at computational imaginations of moving bodies and their articulation and enactment through software, interfaces and devices. Thinking with the practices of 3D-modelling, dance notation and motion capture, I would like to look at the way human movement is encoded into machines, and how an engagement with their 'alien logic' might open up the conditions of the possible. It is an attempt to reclaim digital bodies from the forces of optimization, capture and prediction and to repoliticize them through their potential for more-than-human movement.

Possible Bodies is a collaborative research initiated by Jara Rocha and Femke Snelting. It activitates the very concrete and at the same time complex and fictional entities that "bodies" are, asking what matter-cultural conditions of possibility render them present. This becomes especially urgent in contact with the technologies, infrastructures and techniques of 3D tracking, modelling and scanning.

http://possiblebodies.constantvzw.org/inventory

About the speaker

Femke Snelting works as artist and designer, developing projects at the intersection of design, feminism and free software. In various constellations she has been exploring how digital tools and practices might co-construct each other. She is member of Constant, a non-profit, artist-run association for art and media based in Brussels. Femke teaches at the Piet Zwart Institute (experimental publishing, Rotterdam) and is currently Research curator at a.pass (advanced performance and scenography studies, Brussels).

WORKSHOP 3

Names

Johanna Seibt, Professor[1]
Gunhild Borggreen, Associate Professor[2]
Kerstin Fischer, Professor[3]
Cathrine Hasse, Professor[4]
Marco Nørskov, Associate Professor[1,5]

Affiliations

[1] Department for Philosophy and the History of Ideas, Aarhus University, Denmark
[2] Department of Arts and Cultural Studies, University of Copenhagen, Denmark
[3] Department of Design and Communication, University of Southern Denmark, Denmark
[4] Danish School of Education (DPU), Aarhus University, Denmark
[5] Hiroshi Ishiguro Laboratories, ATR, Japan

Title

Workshop 3: Working with and alongside Robots: Forms and Modes of Co-Working

Time and location

Wednesday, February 14, 14.30-16.00 and 16.30-18.30, Room II UC, Hörsaal C 2

Abstract

This workshop aims to contribute to a better understanding of the possible socio-cultural, psychological, and ethical-existential implications of difference forms and modes of human-robot co-working. Work may be understood as (a) praxis, (b) conception, and (c) experience. While these three senses of work are multiply interdependent, we will focus on work *as experienced activity*. The workshop shall investigate *phenomena and conceptua-lizations* of work undertaken with or alongside several agents where one or more of these agents are artificial agents, with different types and degrees of affordances for social interaction.

While social robotics creates a "regulation problem" and a "description problem" that are intimately intertwined (Seibt2016), the focus of the workshop will be on description and analysis. The workshop will feature speakers from five different research lines that offer new descriptive tools and empirical results on forms and modes of co-working with robots. Some speakers will explore—from the perspectives of analytical and continental philosophy—the conceptual tasks that arise for a systematic social ontology of human-robot interaction. Other contributions will present empirical research on, as well as new practical initiatives for, new forms and modes of co-working. The regulation problem in social robotics will be addressed indirectly by providing insights into the conditions for creating satisfactory work experiences.

ANIKA FIEBICH

Name	Anika Fiebich, Dr.
Affiliation	Department of Philosophy, University of Milan, Italy
Title	**Three Dimensions in Human-Robot Cooperation**
Session	Workshop 3: Working with and alongside Robots: Forms and Modes of Co-Working
Time and location	Wednesday, February 14, 14.30-16.00 and 16.30-18.30, Room II UC, Hörsaal C 2

Abstract

In my talk I will argue for a three-dimensional approach to cooperation. On this approach, any co-operative phenomenon can be located on the continua of (i) a behavioural axis, (ii) a cognitive axis, and (iii) an affective axis. For example, cooperation can be located on a behavioural axis, ranging from complex to simple coordinated behaviours. Moreover, the cognitive requirements in cooperation are a matter of degree, ranging from cognitively demanding cooperative activities involving shared intentions that presuppose sophisticated social cognitive skills such as having a theory of mind to basic joint actions like intentional joint attention. Finally, cooperative activities may be influenced by (shared) affective states. The three-dimensional approach trumps alternatives insofar as it facilitates the dialogue among disciplines. For example, as I will show, it allows determining whether and to which extent particular skills and capacities are implementable in robots and in which cases human-robot cooperation differs in one way or the other from human-human cooperation.

About the speaker

Dr. Anika Fiebich is currently a postdoctoral fellow of the Centre for the Study of Social Action at the University of Milan in Italy. Her research concerns the philosophy of mind and action. Anika Fiebich is interested in topics including social cognition, collective intentionality, and social ontology from perspectives of analytic philosophy and phenomenology. She published a number of articles in these fields. In general, her work is highly inspired by empirical evidences from developmental and social psychology, cultural sciences, robotics and neurosciences.

JOHANNA SEIBT

Name	Johanna Seibt, Professor
Affiliation	Research Unit for Robophilosophy, School for Culture and Society, Aarhus University
Title	**Classifying Forms of Collaborations in the OASIS framework**
Session	Workshop 3: Working with and alongside Robots: Forms and Modes of Co-Working
Time and location	Wednesday, February 14, 14.30-16.00 and 16.30-18.30, Room II UC, Hörsaal C 2

Abstract

OASIS, the Ontology of Asymmetric Social Interactions, was developed with the goal of providing a classificatory framework for human-robot interaction that would allow for an interdisciplinarily integrated discussion of artificial sociality, normativity, and responsibility attributions (Seibt 2014, 2016, 2017). The aim of this talk is to put this framework to use for an analysis of future work experiences with social robots. In OASIS five modes of simulations are distinguished. Each human action is associated with a matrix listing the possible combinations of modes of simulations of the parts of the action. The goings-on in a specific robot can then be described in terms of a row of the "simulatory expansion matrix" of a human action. This simple method allows us to avoid the common practice of describing the robot's contributions in a human-robot interaction with mentalist vocabulary ("plans, recognizes, sees" etc). As Fiebich et al 2015, OASIS uses familiar distinctions in forms of collective intentionality to classify different kinds of coordinated and collaborative social interactions between humans and robots, but evaluates these for three perspectives (second-person, internal third-person, and external third-person). These perspectives matter for the ascription of responsibility but also, as I will try to show in this talk, for a classification of forms and modes of co-workings with robots. For example, for certain forms of simulations we would seem to be able to predict that what is, from the internal third-person point of view, designed as co-working in the form of teamwork, is experienced as "working alongside" or even "working next to" by the robot's direct interaction partner who has a second-person perspective.

About the speaker

Together with Marco Nørskov, Johanna Seibt coordinates the Robophilosophy Conference Series. She works on the ontology of human-robot interactions and is the PI of the research project on Integrative Social Robotics (INSOR) supported by the Carlsberg Foundation with 25 researchers from 11 disciplines. She is co-editor of *Sociality and Normativity for Robots—Philosophical Inquiries* (Springer 2017, together with R. Hakli and M. Nørskov) and of *Robophilosophy—Philosophy of, for, and by Social Robotics* (MIT Press, forthcoming).

LUIS DE MIRANDA

Name	Luis de Miranda, PhD
Affiliation	Department of Philosophy, Anthrobotics Cluster, The University of Edinburgh, UK
Title	**Cosmic Anthrobots: Conjecturing Our Mode of Collaboration With Robonauts**
Session	Workshop 3: Working with and alongside Robots: Forms and Modes of Co-Working
Time and location	Wednesday, February 14, 14.30-16.00 and 16.30-18.30, Room II UC, Hörsaal C 2

Abstract

"Robonaut" is the name Nasa gives to humanoid robots. These are designed in order for them to perform tasks in outer space that would be analogous to what a human who be able to do. Like current Mars rovers, these robonauts will be at least partly remote-controlled by an Earth-based human pilot, which means that, in such cases, the working collaboration will be an immensely distant one (interplanetary or intergalactic).

My presentation will conjecture that the human species will become a cosmic species not by travelling through space directly and physically as is often imagined, but by using robotic avatars, projections of our bodies. I call this relational form of exploratory work "cosmic anthrobots", in order to follow up on the Robophilosophy 2016 paper "We, Anthrobots: Learning From Human Forms of Interaction to Develop More Plural Social Robotics" (de Miranda et al., 2016).

I will now propose a few hypotheses on the mode of being that a cosmic-robotic projection of the human at work means. My analysis will be inspired by current collaboration between human Rover drivers, located on Earth, and the robotic non-humanoid devices they control on Mars ("Spirit" and "Opportunity" for example). I will also perform some comparison with the modes of work in the early systematic human-robotic (anthrobotic) factories in Japan, especially in what regards what I call the "Shizuoka Case", at Star Micronics (Schodt, 1988) in which human workers complained that they "felt like robots."

About the speaker

Luis de Miranda, PhD, is the author of 12 monographs and novels, translated into several languages. His themes of research are: epistemological history, philosophy of science and technology, esprit de corps, and cosmology.

DIEGO COMPAGNA

Name	Diego Compagna, Dr. (senior researcher), together with: Philipp Graf, Pat Treusch, and Raphael Deimel
Affiliation	Department of Electrical Engineering and Computer Science, Control Systems Group, Technical University Berlin, Germany
Title	**Sociological Remarks on Repetition and Variation in Human-Robot Cooperation**
Session	Workshop 3: Working with and alongside Robots: Forms and Modes of Co-Working
Time and location	Wednesday, February 14, 14.30-16.00 and 16.30-18.30, Room II UC, Hörsaal C 2

Abstract

From a sociological point of view the criteria for a successful human-robot cooperation would be quite different than those specified by roboticist or HRI-research groups. The criteria for a successful human-robot interaction (HRI) depend on whether one focuses on the robot as a machine or on the human as a social actor. Most research designs however choose the machine-based definition to describe the outcome of HRI as successful or not. In our paper we suggest taking into consideration the other side of the equation. In this regard, a successful interaction is not restricted to the fulfilment of an anticipated and machine-side pre-scripted outcome or action; rather, here success hinges on the possibility of taking the robot's (unexpected) action as an occasion for further communication. Humans are experts in picking up on possibilities for creating a successful interaction. We will present data from our lab that shows how humans constantly are transforming failures of the robot into a source of communication, and how (machine) "failure" can become an even greater success of (social) communication than the strict execution of a predetermined script by the machine.

About the speaker

Diego Compagna is a senior research fellow (post-doctorate) in the Control Systems Group, part of the Department of Electrical Engineering and Computer Science at the Technische Universität Berlin. His research interests in the field of Science and Technology Studies focus on the area of theory-building, sociological actor-models, methodology for the evaluation of human-robot encounters as well as interaction and the politics of innovation strategies for special target groups.

HENDRIK-JAN GRIEVINK

Name	Hendrik-Jan Grievink (researcher and designer)
Affiliation	Next Nature Network (NL)
Title	**<Hello-womb/>**
Session	Workshop 3: Working with and alongside Robots: Forms and Modes of Co-Working
Time and location	Wednesday, February 14, 14.30-16.00 and 16.30-18.30, Room II UC, Hörsaal C 2

Abstract

In his talk, Hendrik-Jan Grievink will present a vision in which technology becomes a 'next nature', through a selection design projects of the Next Nature Network such as 'Meat The Future', an exploration of the cultural potential of in vitro meat and HUBOT, a job agency for humans and robots. The talk will focus on the new ongoing 'Reprodutopia' project, an investigation into the future of relationships, sexuality and reproductive healthcare through speculative research and design fiction. The projects aims to research potential new cultures that could emerge when Artificial Reproductive Technologies such as artificial wombs or other robotic reproductive environments become a reality. The main question here is: Biological reproduction, gestation and childbirth may be natural process, but are they humane too? Is it fair and just to place all risks and burdens of producing a new generation of humans only on the female part of the population? Can we envision the alternatives and the reproductive cultures these will bring? And more importantly: how should these alternatives be designed?

About the speaker

Hendrik-Jan Grievink is designer at Next Nature Network and as such, has been responsible for much of the visual output of the network. His work includes the book Next Nature: Nature Changes Along With Us (2011); art direction and design of the NANO Supermarket, our mobile expo disguised as a supermarket about the impact of nanotechnology on our daily lives (2010 – present) and the In Vitro Meat Cookbook, which explores the possible futures of lab grown meat through design fiction (BIS publishers, 2014).

www.nextnature.net

WORKSHOP 4

Name	Charles Ess[1]
Affiliation	[1] University of Oslo, Norway
Title	**Workshop 4: Phronēsis and Computation: Current Perspectives**
Time and location	Wednesday, February 14, 16.30-18.30, Room I UC, Hörsaal C 1

Abstract

Phronēsis is foregrounded in virtue ethics as the premier form of ethical judgment and excellence (virtue) required for making the often difficult ethical choices central to good lives and flourishing. At the same time, phronēsis is widely argued to be computationally non-tractable. Phronēsis is thereby a critical focus for machine ethics, AI, and robotics.

Our track on phronēsis and computation continues explorations from previous Robophilosophy conferences, and will include presentations by: Anne Gerdes (Southern Denmark University), John D. Sullins (Sonoma State University, CA, USA), and Selmer Bringsjord (Rennsaeler Polytechnic Institute) and colleagues on the "Making Morally Competent" robots project

VINCENT C. MÜLLER

Name	Vincent C. Müller, Professor & Academic Fellow
Affiliation	American College of Thessaloniki & University of Leeds, IDEA Centre
Title	**Real Machine Ethics**
Session	Workshop 4: Phronēsis and Computation: Current Perspectives
Time and location	Wednesday, February 14, 16.30-18.30, Room I UC, Hörsaal C 1

Abstract

Traditional machine ethics is ethics for machines, but this enterprise is misconceived since machines cannot (in the foreseeable future) literally be praised or blamed for their action. A machine may act as if it makes choices that it can be held responsible for, but that is a behaviorist misunderstanding. So a real machine ethics would allow us to talk about ethics without falling into the trap of assuming that machines have real obligation. There is a good tradition to draw on: Aristotle explained the word "good" in terms of function: A knife is made for a purpose, a good knife is one that fulfils its purpose well – and the properties that make it fulfil it's purpose well are called its "virtues". These are virtues of artefacts that we make for our human purposes, and they are measured by how well they contribute to these purposes – mainly the well-being of humans and other sentient beings. So, what is left for 'machine ethics' is the obligation of the makers of machines to contribute to the overall good. We don't need a special ethics for machines; we already have an ethics for making and using machines.

About the speaker

Müller was Seeger Fellow at Princeton University and James Martin Fellow at the University of Oxford (at FHI). He is now is professor of philosophy at Anatolia College/ACT and University Academic Fellow at the University of Leeds - as well as President of the European Association for Cognitive Systems, and chair of the euRobotics topics group on 'ethical, legal and socio-economic issues'. He has generated 3.6mil.€ research income for his institution, organizes a conference series on the 'Theory and Philosophy of AI' (www.pt-ai.org) and edits the forthcoming 'Oxford Handbook for the Philosophy of AI' http://www.sophia.de

ANNE GERDES

Name	Anne Gerdes, Assoc. Professor
Affiliation	Department of Design and Communication, University of Southern Denmark
Title	**The Role of Time in Phronetic Activities**
Session	Workshop 4: Phronēsis and Computation: Current Perspectives
Time and location	Wednesday, February 14, 16.30-18.30, Room I UC, Hörsaal C 1

Abstract

To figure out what we ought to do in a given situation, we consider plausible future scenarios with morally preferably outcomes on the backdrop of our current situation. Likewise, we may evaluate past actions, in deliberating about whether we did right or wrong, by zooming in on some specific past circumstances. Here, typically in cases involving past wrongdoing, we may revisit a "past future," i.e., reason from a counterfactual scenario. Obviously, it takes experience-based knowledge, phronesis, to see which actions are right in a given situation at a given time. As such, making a promise involves a certain amount of risk-taking since every obligation we make limits our space of liberty of action in the future. Sometimes, stakes are too high when we make a promise, as in the well-known case of Jephthah's dilemma (Jephthah promises to offer the first person he meets when he returns home. It turns out to be his daughter; hence the dilemma). Consequently, to be phronimos involves being capable of making obligations which involve the proper level of risk-taking given the concrete situation in which one makes the obligation. The learning process inherent in such risk-taking activities drives the kind of engagement needed to cultivate us to become phronimos. It might be the case that an artificial ethical agent will become able to make ethically right choices or present us with proper ethical evaluations of situations. However, it will presumably never be phronimos, as it would carry out such ethical activities without awareness of, and ability to learn from, the relation between time and risk and the role it plays in moral life.

About the speaker

Anne Gerdes teaches courses on value-based design and ICT & Ethics at BA and MA level. She is the author of over 50 articles. Her research interests are found in artificial intelligence, technologies of automated decision making, privacy, and moral machines.

More info at:
http://findresearcher.sdu.dk/portal/en/persons/anne-gerdes(086a4c9e-1fbb-4474-b9f3-1d653ba70bbf).html

SELMER BRINGSJORD ET AL.

Names

Selmer Bringsjord[1]
Matthias Scheutz[2]
Bertram Malle[3]
Naveen Sundar G. [1]
Paul Bello[4]

Affiliations

[1]Rensselaer AI & Reasoning (RAIR) Lab, Rensselaer Polytechnic Institute (RPI), USA;
[2]Computer Science, Tufts University, USA;
[3]Brown University, USA; Rensselaer AI & Reasoning (RAIR) Lab, Rensselaer Polytechnic Institute (RPI), USA;
[4]United States Naval Research Laboratory

Title

Making Morally Competent Robots Meets Artificial Phronēsis: Some Key Issues

Session

Workshop 4: Phronēsis and Computation: Current Perspectives

Time and location

Wednesday, February 14, 16.30-18.30, Room I UC, Hörsaal C 1

Abstract

A truly morally competent robot would arguably need to have a capacity to knowingly behave in keeping with the tenets of virtue ethics (VE), which in turn seems to entail that this robot understands, and perhaps even displays, phronēsis. By definition, we would here be talking about artificial phronēsis (= AP). To our knowledge, the largest and most ambitious project in machine ethics (for robots, but also for artificial agents generally) is the MURI project with which we are all associated; this project, "Making Morally Competent" robots (MMCR), is led by Prof Matthias Scheutz. In this presentation, we offer a "position statement" re. AP and VE, from the perspective of our project. This presentation covers the connection between AP/VE and MMCR in the following five areas: (i) perception and attention (Paul); (ii) HRI and comprehensive architectures for cognitive robotics, including morally competent reasoning and decision-making in MMCR (Matthias); (iii) the cognitive science of moral reasoning and decision-making (Bertram); (iv) AI planning at the cognitive level (Naveen); and (v) the intimate bond between AP/VE and divinity, from Aristotle to Anscombe (Selmer; no affirmation of the divine entailed by the analysis).

About the speakers

Selmer Bringsjord specializes in building via computational logic (with indispensable help from others) AI systems and robots with human-level powers, and in the philosophical and logico-mathematical foundations of AI.

Matthias Scheutz's work focuses on complex robots with natural language and advanced ethical reasoning capabilities.

Bertram Malle's research focuses on social cognition, moral psychology, and human-robot interaction.

Naveen Sundar Govindarajulu's recent work in machine ethics includes formalization and automation of extensions of the Doctrine of Double Effect, modeling *akrasia*, and building ethical layers for robots.

Paul Bello is the co-principal on the ARCADIA project, an ambitious effort to computationally realize a unified theory of the mind grounded in a rich theory of human attention and its relationship to both agency and consciousness.

JOHN SULLINS

Name	John P. Sullins, Professor
Affiliation	Sonoma State University Center for Ethics Law and Society (CELS) California, USA
Title	**Artificial Phronēsis, What it is and What it is Not**
Session	Phronēsis and computation: current perspectives
Time and location	Wednesday, February 14, 16.30-18.30, Room I UC, Hörsaal C 1

Abstract

Artificial Phronēsis (AP) claims that phronēsis, or practical wisdom, plays a primary role in high level moral reasoning and further asks the question of whether or not a functional equivalent to phronēsis is something that can be programed into machines. The theory is agnostic on the eventuality of machines ever achieving this ability but it does claim that achieving AP is necessary for machines to be human equivalent moral agents. AP is not an attempt to fully describe the phronēsis described in classical ethics. AP is not attempting to derive a full account of phronēsis in humans either at the theoretical or neurological level. AP is not a claim that machines can become perfect moral agents. Instead AP is an attempt to describe an intentionally designed computational system that interacts ethically with human and artificial agents even in novel situations that require creative solutions. AP is to be achieved across multiple modalities and most likely in an evolutionary fashion. AP acknowledges that machines may only be able to simulate ethical judgement for sometime and that the danger of creating a seemingly ethical simulacrum is ever present. This means that AP sets a very high bar to judge machine ethical reasoning and behavior against. It is an ultimate goal but real systems will fall far short of this goal for the foreseeable future.

About the speaker

John P. Sullins is a full professor of philosophy at Sonoma State University. He has numerous publications on the ethics of autonomous weapons systems, self-driving cars, personal robotics, affective robotics, malware ethics, and the philosophy and ethics of information technologies as well as the design of autonomous ethical agents.

For more information see:
https://sonoma.academia.edu/JohnSullins
www.linkedin.com/in/sullins

WORKSHOP 5

Name

Zachery McDowell[1]

Affiliation

[1] University of Illinois at Chicago, USA

Title

Workshop 5: Political Economy of Robots

Time and location

Thursday, February 15, 10.30-12.00, Room I UC, Hörsaal C 1

Abstract

We are - it seems - in the midst of a robot apocalypse. This invasion, however, does not look like what we have been programmed to expect from decades of science fiction literature and film. It occurs not as a spectacular catastrophe involving a marauding army of alien machines dramatically descending from the heavens with weapons of immeasurable power. Instead, it takes place, and is already taking place, in ways that look more like the Fall of Rome than Battlestar Galactica, with different devices of various configurations and capabilities slowly but surely coming to take up increasingly important and influential positions in everyday social reality – self-driving vehicles, recommendation algorithms, machine learning decision making systems, and social robots of various forms and configurations.

Critical responses to this opportunity and challenge often target and are typically concerned with the capabilities of these mechanisms, the methods of ensuring their safe operation, and the social consequences of increased automation in all parts of our world. Largely missing from the conversation is an examination of the social contexts and systems of power in which robots, AI, and other autonomous systems will be developed and deployed. If during the industrial revolution one of the operative questions was who owned and controlled the means of production, we should ask a similar question in the face of the robot revolution: who will develop, own, and control the robots? This panel seeks to remediate this oversight by initiating a conversation about the political economy of robots. In doing so, it responds directly and explicitly to the conference theme: "Envisioning Robots in Society: Politics, Power and Public Space."

DAVID J. GUNKEL

Name	David J. Gunkel, Professor
Affiliation	Department of Communication Northern Illinois University USA
Title	Digital Divide 2.0, or the Robot Rift
Session	**Workshop 5: Political Economy of Robots**
Time and location	Thursday, February 15, 10.30-12.00, Room I UC, Hörsaal C 1

Abstract

The term "digital divide" has been used to describe the unequal distribution of and access to computers, the Internet, and information technology across the globe. If, as Bill Gates had predicted in 2008, robots are positioned to be the next world-changing technological innovation, it is likely that these devices and the opportunities they afford human individuals and communities will also be distributed in a way that is anything but equitable. Evidence of this technological socio-economic difference can already be seen with data concerning the adoption and penetration of robotic technology, AI applications, and algorithms. This paper defines, characterizes, and investigates the causes and consequences of this this next-gen digital divide—what one could call "digital divide 2.0" or "the robot rift." In particular, the paper 1) draws on and leverages the decades of experience documenting and addressing the initial digital divide in order to formulate an approach to technological innovation that is attentive to social, political, and economic inequalities; 2) reviews the current state of the robot rift by considering both the magnitude and the characteristics of the gulf that already separates the "robot haves" from the "robot have nots"; 3) examines the way that AI and robotic technologies can both respond to and exacerbate existing socio-economic disparities; and 4) profiles some of the innovative work that is currently being pursued in order to try to get out in front of these social issues before they become a global problem.

About the speaker

David J. Gunkel is an award-winning educator and author, specializing in the philosophy of technology. He is the author of over 70 scholarly articles and has published nine books, including *The Machine Question: Critical Perspectives on AI, Robots, and Ethics* (MIT Press, 2012), *Of Remixology: Ethics and Aesthetics After Remix* (MIT Press, 2016), and *Robot Rights* (MIT Press, 2018). He currently holds the position of Distinguished Teaching Professor in the Department of Communication at Northern Illinois University (USA) and is the founding co-editor of the *International Journal of Žižek Studies.* More info at http://gunkelweb.com

ZACHARY MCDOWELL

Name	Zachary J. McDowell, Asst. Professor
Affiliation	University of Illinois at Chicago, USA
Title	**The Remixed Self as/and Robot: Algorithmic Remixes and Robotic Ownership**
Session	Workshop 5: Political Economy of Robots
Time and location	Thursday, February 15, 10.30-12.00, Room I UC, Hörsaal C 1

Abstract

In the prequel to Battlestar Galactica, Caprica (2009), the constitution of a "Cylon" robot is through an algorithmic interpretation of surveillance data. The AI of the robot is discussed as a "perfect copy" of the corporeal subject, created by an assemblage of digital traces - credit card records, social media accounts, electronic medical records, school records, (and more) all algorithmically remixed into the robot "self" of the cylon. This narrative, although fictionalized, parallels current methods of algorithmic interpretation and data collection, constructing digital selves that inhabit, inform, and train our robotic "others." This paper will 1) Explore layers of human-machine relationship involved in designing computerized systems, teasing out layers of machinic agency in relationship to embedded discriminatory practices; 2) Examine how these systems interoperate and create cybernetic relationships between human and robot, addressing how our robotic counterparts shape further collection of data and interpretation; and 3) Problematize ownership and accessibility of data-influenced robots, robotic data creation, and the futures of the robotic selves in this relationship.

About the speaker

Zachary J. McDowell is Assistant Professor of Communication at the University of Illinois at Chicago (USA). His work focuses on access and advocacy in digitally mediated spaces, from gaming, to surveillance, to social media, information policy, data-representations, education, and emerging media trends, focusing on transformative nature of digital media in cultural production. He is co-founder and co-editor of the open access journal *communication +1*.

ALFIE BOWN

Name	Dr Alfie Bown, Asst. Professor
Affiliation	School of Humanities and Social Sciences, HSMC, Hong Kong
Title	**LeftTech: The Psychoanalysis of Robots**
Session	Workshop 5: Political Economy of Robots
Time and location	Thursday, February 15, 10.30-12.00, Room I UC, Hörsaal C 1

Abstract

Innovations in new technology - specifically developments in VR, AR and AI that have become visible in the last three years - work to produce new effects, emotions and sympathies in those who engage with the technology. These new experiences transform the contemporary subject into a new kind of organism which thinks and feels differently when compared to the subjects of the past. As Franco 'Bifo' Berardi has put it, human consciousness is 'mutating' in the technological age. From the perspective of this paper, it is less important that robots are becoming like humans and more important that human consciousness itself is becoming robotic, without the negative implications of that statement. In short, our transforming affectual plane renders us a new kind of cyborg, which presents as much potential as danger. This paper will address the question of whether psychoanalysis – a discourse for understanding the relationship between affects and subjectivity - will be rendered useless by the cyborgs to come, or whether a new kind of technology-focused psychoanalysis can be a vital tool for navigating the politics of people and robots. While psycho-analysis was borne out of an older model of subjectivity, I present here the start of a manifesto for a newer form of psychoanalysis that can be of great assistance in navigating the technological future for a progressive political agenda. Such an approach, I argue, can help combat the corporate dominance of the robot economy that we are up against today.

bout the speaker	Alfie Bown is Assistant Professor of Literature at HSMC, Hong Kong. He has written two books on psychoanalysis and technology, *Enjoying It: Candy Crush and Capitalism* (Zero, 2015) and *The Playstation Dreamworld* (Polity, 2017) and is now working on a new book on robots and the political Left. He is also the series editor of *Everyday Analysis*.

PETER RANTAŠA

Name	Peter Rantaša, Ing. Mag.
Affiliation	Department of Philosophy, University of Vienna, Austria
Title	**Artificial Property: People's Robots and Robot People**
Session	Workshop 5: Political Economy of Robots
Time and location	Thursday, February 15, 10.30-12.00, Room I UC, Hörsaal C 1

Abstract

In juridical terms robots are framed as objects, in economic terms as capital (if involved in economic production processes) or as merchandise and consumer item. In any case, robotic things belong to a juridical or natural person, they are someone's possession. The basic relation of people and robots is regulated as the bundle of rights and duties that characterizes ownership in property law. This paper examines the question who will develop, own, and control robots by following some of the tensions, cracks and fundamental aporias that challenge the existing body of juridical laws when objects acquire faculties that hitherto only have been present in natural persons. Given the end of the device paradigm that marks the beginning epoch of AI in applications of ambient, distributed, networked or ubiquitous computing I focus in particular on intellectual property law and rights (IPRs) that apply for physical and software robots likewise. I will look at cases that represent opposite perspectives: Robots as creators and robots as creations. Along these lines I will discuss recent examples. Looking at the aspects of ownership, access and control of the code of AIs I will draw parallels between debates of "copyleft" like open source, public access and fair use vs "copyright" regarding the implications of ownership. I will call for an open debate about the possibility of a balance between the private and the public good in robots and AI within the current political economic regime and argue for a change.

About the speaker

Peter Rantaša is Doctoral Student at the University of Vienna and member of the research group of the Chair Philosophy of Technology and Media led by Mark Coeckelbergh. He currently works on his PhD thesis on Voice in Humans and Talking Machines. He is also Coordinator at the Cognitive Science Research Platform based at the University of Vienna and has a professional international background in arts, cultural management, creative industries and advocacy thereof. He studied Cognitive Science and is a practical trainied engineer ("Ingenieur", state certified engineer in "Nachrichtentechnik, Elektronik und biomedizinische Technik").

JAMES SMITH

Name	James Smith, Lecturer
Affiliation	Department of English, Royal Holloway, University of London, UK
Title	**On the Genealogy of Morals of Robots**
Session	Workshop 5: Political Economy of Robots
Time and location	Thursday, February 15, 10.30-12.00, Room I UC, Hörsaal C 1

Abstract

The immediate post-war decades were characterised by optimism about exponential economic growth, consumer luxury, and fast-advancing automation technology; often echoing the utopian predictions of J.M. Keynes' 'Economic Possibilities for our Grandchildren' (1930) of a world free from conventional work. This culture also stimulated a sceptical 'moral' tradition of thinkers addressing the implications of such radical change to our lives. 'Moral', that is, not in terms of what treatment we owe to future robots, but as concerns the effect the new luxury and idleness they are supposed to bring will have on us. A sketch of this tradition might include such figures as Richard Hoggart, Anthony Crosland, J.K. Galbraith, and the late work of F.R. Leavis. Today, we see each of the utopian anticipations of the 50s and 60s turned inside out. Economic growth has had its connection to living standards severed; consumer goods depend on a culture of personal debt, not to mention a violent system of globally exploitative manufacture; and automation and digital technology seem to offer only the unaccountable power of tech companies over our daily lives in the present, and the prospect of mass unemployment in the future. Suffice to say, the return of automation as a crucial cultural issue in the past decade or so has not yet stimulated a 'moral' culture of interrogative thought such as the post-war version did. In this paper, I look to disinter some of these earlier thinkers to ask what use they might be to a 'genealogy of morals of robots' today.

About the speaker

J.A. Smith is a scholar of literature and politics. His doctoral research was on the theory of tragedy from the 18th century to the present, and he has more recently turned that training in critical theory to contemporary questions of populism, 'desire' in politics and the online sphere, and the future of work. His work has been cited by Novara Media and the Guardian. *Other People's Politics: Corbyn and the New Populism* (Zero Books) and *Lifework: The Putting to Work of Everything We Do* (Zed Books, with Mareile Pfannebecker) will be published in the coming year.

WORKSHOP 6

Names

Michael Filzmoser[1]
Sabine Koeszegi[1]
Sladjana Nørskov[2]
John Ulhøi[2]

Affiliations

[1] TU Wien, Austria
[2] Aarhus University, Denmark

Title

Workshop 6: The use of Social Robots in Key Business Activities

Time and location

Thursday, February 15, 10.30-12.00, Room II UC, Hörsaal C 2

Abstract

Recent technological development suggests a potential for replacing and/or supplementing previous exclusively human-based business processes with social robots. This workshop seeks to discuss business activities in which the use of social robots may (or may not) offer potential for new ways of organizing and/or reducing existing organizational problems. In this workshop the following questions are therefore put forward: Which key social robotics-related drivers and barriers may affect the adoption process and with what effects on human behaviour? How, when, why, and under what conditions does the adoption of social robots improve business processes? These questions will be discussed from a business and management perspective.

MICHAEL FILZMOSER AND SABINE T. KOESZEGI

Names	Dr. Michael Filzmoser, Assoc. professor Dr. Sabine T. Koeszegi, Professor
Affiliation	Department of Labor Science and Organization, Insitute of Management Science, TU Wien, Austria
Title	**Automation and Digitalization of Business Processes – Evaluating Benefits and Challenges**
Session	Workshop 6: The Use of Social Robots in Key Business Activities
Time and location	Thursday, February 15, 10.30-12.00, Room II UC, Horsaal C 2

Abstract

One of the main proposition in literature on AI and (social) robotics is that these technologies will cause a substantial amount of job losses – not only for industry workers but also for knowledge workers and managers. However, job analysis of knowledge workers and managers reaveals that these new technologies may not replace humans completely in their jobs but only in certain tasks. Distributing tasks among human and artificial agents requires a close interaction and collaboration. Since process management favors case working over switching between (human or artificial) agents - as switching carries error potential and causes set-up times or lay times which all negatively influencing performance - effectively integrated socio-technical systems need to be designed which consider whole business processes.

This paper addresses potential benefits and challenges associated with the design of such socio-technical systems. We identify areas where social robots and artificial agents could be beneficial (e.g. where neutrality and objectivity is required as for example conflict mediation, moderation of creative team meetings or difficult group meetings) and address challenges associated with the delegation of tasks to AI and social robotics in these areas. In particular we discuss issues of trust, overconfidence, control and accountability when in delegating tasks to artificial agents and social robots (delegation problem).

About the speakers

Michael Filzmoser, Associate Professor at the Department of Organization and Labor Science, Institute of Management Science, TU Wien, Austria. His research focuses on simulation, negotiation and organization theory, in particular the analysis and design of coordination processes. His recent research and teaching projects address digitalization and automation in administrative, service and management processes.

Sabine Koeszegi, Professor of Labor Science and Organization, Institute of Management Science, TU Wien, Austria. Her research interests are at the intersection of technology, work and organization and cover amongst others topics of conflict resulution, flexible work arrangements, and socio-cultural implications of technologies. She is chairing the Austrian Council for Robotics.

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JOHN P. ULHØI AND SLADJANA NØRSKOV

Names

John P. Ulhøi, Professor
Sladjana Nørskov, Assoc. Professor

Affiliations

Department of Management, Aarhus University, Denmark
Department of Business Development and Technology, Aarhus University, Denmark

Title

Social robotics: Adding agency and physicality to technology

Session

Workshop 6: The Use of Social Robots in Key Business Activities

Time and location

Thursday, February 15, 10.30-12.00, Room II UC, Horsaal C 2

Abstract

This paper discusses a special case of technological digitalization made possible by the emergence of social robots. It is argued that increased diffusion and adoption of social robots not only may have significant economic and social impact but also important implications for existing work practices and processes. When adding agentic and physical properties to digital technology, it seriously affects its wider business applications and implications. Despite an emerging dissemination of this technology, surprisingly little attention from the business research community has surfaced. The paper fills up some of this void and broadens existing understanding of potential implications associated with emerging robotic innovations appearing in different business sectors. Finally, the paper offers suggestions for the future research agenda.

About the speakers

John P. Ulhøi is a Professor at Aarhus University, Denmark. His research focuses on how agents, acts, behavior, and/or applied techniques enable and facilitate planned changes in for-profit organizations. His work has been published in journals such as the Journal of Business Venturing, Entrepreneurship Theory & Practice, Technological Forecasting and Social Change, Technovation, and Business Strategy and the Environment.

Sladjana Nørskov is an Associate Professor at Aarhus University, Denmark. Her research interests revolve around organizational development, innovation management and new organizational forms. She studies mechanisms, processes and performance in situations where innovation activities are distributed among individuals in organizations and communities. Sladjana has published her work in international peer-reviewed journals such as Creativity and Innovation Management, Information Technology and People, International Journal of Innovation Management, Journal of Consumer Marketing, and European Journal of Innovation Management.

LARS HAAHR AND ANNA B. HOLM

Names	Lars Haahr, Asst. Professor Anna B. Holm, Assoc. Professor
Affiliation	Department of Management, Aarhus University, Denmark
Title	**Chatbots in Human Resource Management**
Session	Workshop 6: The Use of Social Robots in Key Business Activities
Time and location	Thursday, February 15, 10.30-12.00, Room II UC, Horsaal C 2

Abstract

This paper discusses how digital technologies labeled social robots are transforming human resource management practices and how they will affect managerial practices in the future. In order to frame these questions we draw on a distinction between operational, relational and transformational human resource practices (Lepak and Snell 1998). Further, we apply an innovation management process perspective in order to distinguish between stages of comprehension, adoption, implementation and assimilation (Swanson and Ramiller 2004).

As our research setting, we have chosen the emergent technology labeled 'chatbots' in order to study how these social robots are deployed for 'onboarding' practices. We argue that the use of chatbots provides an excellent opportunity to examine the interaction between humans and computers in organizational management contexts. In particular, the artificial intelligence or 'smart' aspects of these emerging digital technologies are promising to become interesting future areas of research.

About the speakers

Lars Haahr's research focuses on management of digital transformation within organizational contexts. Publications include: "Wrestling with contradictions in government social media practices" in International Journal of Electronic Government 2014; "Social media as organizing vision? An interpretive field study of how formal organizations respond to social media", Phd dissertation, 2016. Prior to his academic career, Lars has had several years of industry experience.

Anna B. Holm's research interests span across various managerial disciplines with the main focus on digitalization of human resource management. Within the HR domain, Anna has conducted research on recruitment and selection with technology, i.e. e-recruitment and e-selection. Her research has been published in several management journals including Employee Relations, Journal of Business Strategy, International Journal of Innovation Management and International Journal of Technology Management.

WORKSHOP 7

Names

John P. Sullins[1]
Robin L. Zebrowski[2]

Affiliations

[1] Sonoma State University, USA
[2] Beloit College, USA

Title

Workshop 7: Is Machine Consciousness Necessary for True AI Ethics?

Time and location

Thursday, February 15, 10.30-12.00, Room III UC, Aula

Abstract

Drawing on work by Wallach and Allen (2008), artificial moral agents (AMAs) are AI and robotic agents that are built to consider ethical norms when deciding on actions that have moral impacts on other human and artificial agents. In this panel, we will discuss the role that consciousness might play in moral reasoning and whether artificial agents will need to have some form of consciousness in order to be effective moral agents. Regardless of the answer to this question, we will also explore whether artificial consciousness might place stronger moral clams on humans in their relations to artificial agents. Would conscious AMAs have a stronger claim to being moral patients?

JOANNA JOY BRYSON

Name Joanna Joy Bryson, Reader in Artificial Intelligence

Affiliation Department of Computer Science
University of Bath, United Kingdom, EU

Title **Consciousness is Neither Necessary nor Sufficient for AI Ethics**

Session Workshop 7: Is Machine Consciousness Necessary for True AI Ethics?

Time and location Thursday, February 15, 10.30-12.00, Room III UC, Aula

Abstract
The topic of this panel is impossibly vague because of the lack of agreement concerning what either "consciousness" or "AI ethics" entails, but for the purpose of my talk I will assume that by consciousness we mean an AI analogue of the processes of learning and action selection that humans exploit when they report the qualia of conscious attention. I will then explore how this analogue affects the position of three possible interpretations of "AI ethics" 1) the taking of actions by machines with moral consequence, 2) the attribution of responsibility for actions to the machine, or 3) moral obligation towards the machine. I will show for each of these interpretations the property of consciousness is neither necessary nor sufficient for determining the ethical status. I will compare and contrast these considerations with rats, infants, and human adults for the same three interpretation of ethics. I conclude that the term "conscious" is a poor proxy for the concepts of "moral agent" or "moral patient", and that the historic correlation between adult human awareness and moral responsibility does not by necessity extend into artefacts or even animals.

About the speaker Joanna J. Bryson is a transdisciplinary researcher on the structure and dynamics of human- and animal-like intelligence. Her research covering topics from artificial intelligence, through autonomy and robot ethics, and on to human cooperation has appeared in venues ranging from a reddit to Science. She holds degrees in Psychology from Chicago and Edinburgh, and Artificial Intelligence from Edinburgh and MIT. She has additional professional research experience from Princeton, Oxford, Harvard, and LEGO, and technical experience in Chicago's financial industry, and international management consultancy. Bryson is presently a Reader (associate professor) at the University of Bath, and an affiliate of Princeton's Center for Information Technology Policy.

ANTONIO CHELLA

Name	Antonio Chella, Professor
Affiliation	Dipartimento dell'Innovazione Industriale e Digitale, Università di Palermo, Italy and Istituto di Calcolo e Reti ad Alte Prestazioni, Consiglio Nazionale delle Ricerche, Palermo, Italy
Title	**AMA and the capability of conscious choices**
Session	Workshop 7: Is Machine Consciousness Necessary for True AI Ethics?
Time and location	Thursday, February 15, 10.30-12.00, Room III UC, Aula

Abstract

I suggest that an AMA, i.e., an agent morally responsible of its own actions, should be capable of conscious choices. A conscious choice is not a random outcome of the agent, nor the result of causes external to the AMA but the outcome of the set of causes constitutive of the AMA. Thus an AMA is not there from the start, but it develops while more and more causes get entangled together thanks to the structure of the agent. There is a progression from situation-action agents to conscious-oriented agents and such a progression corresponds to an increased entanglement between individual history and causal structure of the agent. The responsibility associated with AMA's conscious choices depends on how much that decision is the result of the individuality of the AMA, that may be roughly quantified by the memory of past events concocting the causal structure of the agent, the number of sensory-motor contingencies acquired, the learned capabilities to integrate information, to cite a few.

About the speaker

Antonio Chella is a Professor of Robotics at the University of Palermo, Italy. He is the Director of the Robotics Lab at the Department of Industrial and Digital Innovation of the same university and an associate at the ICAR-CNR, Palermo. The main research expertise of Prof. Chella is on robot consciousness, cognitive robotics and robot creativity.

JOHN MURRAY

Name	John Murray, Program Director
Affiliation	Computer Science Laboratory SRI International, Silicon Valley, California
Title	**Exploring Emergent Ethics in Multi-Agent Systems**
Session	Workshop 7: Is Machine Consciousness Necessary for True AI Ethics?
Time and location	Thursday, February 15, 10.30-12.00, Room III UC, Aula

Abstract

The rapid proliferation of highly-interconnected intelligent bots has produced major transformations in many sectors of industry and commerce, education, entertainment, communications, etc. These developments have also introduced significant cybersecurity problems, especially in the context of national security and the protection of critical infrastructure. Such challenges pose difficult ethical questions for designers and operators of these autonomous systems, which have received scant attention outside academia. For example, in dealing with the threat of cyber-attacks, most of the R&D emphasis has been on reducing the vulnerability of computers and networks, with much less attention being paid to protecting the people who use them. Hence, the continued success of "social engineering" attacks, which manipulate individuals into giving up privileged information about themselves and their systems. Similarly, the pervasive gathering of personal information via smart devices, is undertaken with little regard for any adverse consequences. This talk will address new initiatives to develop defensive bots, which mediate the communications among the parties, and help targeted users to actively detect and investigate attacks. Such initiatives can provide fertile ground for examining the potential for evolving emergent ethics in multi-agent systems. In particular, we will explore hybrid approaches that link top-down logic rules with bottom-up, game-theoretic methods.

About the speaker

John Murray is a program director at SRI International. His research experience encompasses cognitive engineering, neuro-ergonomics, and interactive collaboration in real and virtual environments. He is active in the field of cyber-research ethics, with particular emphasis on privacy and security. Dr. Murray has led many innovative interdisciplinary studies both in academia and in industry, and has held technical leadership and executive management positions at several international corporations. He holds advanced degrees from Dublin Institute of Technology in Ireland, Stanford University, and the University of Michigan.

WORKSHOP 8

Names

Cathrine Hasse[1]
Stine Trentemøller[1]
Jessica Sorensen[1]
Ben Vermeulen[2]

Affiliations

[1] Aarhus University, Danish School of Education, Denmark
[2] University of Hohenheim, Germany

Title

Workshop 8: Exploring Ethical Responsibilities through Democratic Participation and Expert Panel Discussion

Time and location

Thursday, February 15, 10.30-12.00 and 14.30-16.30, Room IV UC, Seminarraum III

Abstract

In this document, we present a proposal for a workshop centered around the theme of robots and work, with consideration of the ethical, socio-cultural, economic and political impacts of robot implementation in the workplace. Workshop participation involves live voting, breakout groups, and an expert panel discussion. As a foundation for the workshop activities, we present our research in the REELER project. REELER aims to develop a Roadmap for responsible ethical learning in robotics to address human needs and societal concerns. We will achieve this through ethnographic research of minimum ten unique robot cases across Europe. We consider this work highly relevant to the state of affairs in robotics and industry and to the topics of this year's Robophilosophy conference

CATHRINE HASSE

Name	Cathrine Hasse, Professor of Anthropology
Affiliation	Danish School of Education (DPU), Aarhus University, Denmark
Title	**Mini-publics: A new road to responsible robotics**
Session	Workshop 8: Exploring Ethical Responsibilities Through Democratic Participation and Expert Panel Discussion
Time and location	Thursday, February 15, 10.30-12.00 and 14.30-16.30, Room IV UC, Seminarraum III

Abstract

Responsible ethical learning with robotics (in brief REELER) is notoriously difficult because there is a gap between the lifeworld of roboticists (robot designers, engineers, software developers) and the lifeworld of stakeholders affected by the robots (e.g. health care workers, shop floor workers, farming assistants, school teachers). This may lead to a number of unintended consequences and unexpected reactions that come as a, sometimes, unpleasant surprise to both robot developers and policy makers. The 'industry 4.0' may not only be a welcomed and relevant disruption, but also a driver of robo-sabotage, decreased efficiency and new forms of complexity incomprehensible to both robot designers, policy makers and robotic artificial intelligence pervading future work life surroundings.

The highly interdisciplinary H2020-project REELER aims a bridging this gap with a host of new methods including mini-publics. In this talk, I will present a version of mini-publics (inspired by the juridical versions) that can be used by roboticists and policy makers to get new insight into how affected stakeholders may feel about collaborating with robots in the future. Based on our experiences with developing mini-publics as a new tool for research, policy-making and robot design, our work-in-progress research points at mini-publics as a new methodology in a distributed responsibility for ethical and societal issues relating to robotics.

About the speaker

Cathrine Hasse is an anthropologist and a cultural psychologist in the field of STS (Science and Technology Studies), where she has studied natural science education and natural scientists' work place cultures for many years. In the recent years, these insights have been used to study gaps between, on the one side, the cultures of natural scientists/engineers and technology design, and, on the other, the workplace cultures in which the technologies are being implemented (like hospitals and schools). Her research interests include new methodologies in the social sciences, roboethics and collaborative learning. Her publications include books and articles dealing with roboethical issues such as:

Hasse, C. (2017). Vitruvian Robot. In *AI & Society* (pp. 1-3)
Hasse, C. (2015). *An Anthropology of Learning.* Dordrecht: Springer Verlag
Hasse, C., Bruun, M. H., Hanghøj, S. (2015). Studying social robots in practiced places. In *Techné:Research in Philosophy and Technology*, Vol. 19, No. 2, (pp. 143–165)
Hasse, C. (2015). Multistable roboethics. In Jan Kyrre Berg O. Friis, Robert P. Crease (Eds.) *Technoscience and postphenomenology: the Manhattan papers.* (pp. 169-188) Lanham, MD: Rowman & Littlefield Publishers, Incorporated.

BEN VERMEULEN

Name

Ben Vermeulen, Post-doctoral research associate

Affiliation

Institute of Economics, University of Hohenheim, Stuttgart, Germany

Title

Robotization and structural economic dynamics: dawn of a new era?

Session

Workshop 8: Exploring Ethical Responsibilities Through Democratic Participation and Expert Panel Discussion

Time and location

Thursday, February 15, 10.30-12.00 and 14.30-16.30, Room IV UC, Seminarraum III

Abstract

Mankind is on the brink of the fourth industrial revolution, in which robotics and artificial intelligence are expected to have disruptive effects on types of tasks performed by humans, the level of employment, real wages, and the income distribution.

At present, the popular media and public debate are captivated by fearmongering headlines, and also scientific work paints a gloomy picture of the future with structurally high levels of unemployment, stagnating median wages, and growing income inequality.

In this presentation, I provide a short overview of the ongoing discourse on the impact of diffusion and adoption of robotics and artificial intelligence on (i) shifts in tasks performed, skills required, and jobs done, (ii) employment dynamics and the role of education therein, and (iii) real wages, income distribution, and inequality. In addressing these three topics, I pit the 'sector of application' perspective generally followed in literature against a structural change perspective with different types of sectors, both existing and emerging, all (in)directly affected. Although the findings following the latter perspective are speculative (mostly because they hinge on potential employment and wage growth in sectors not yet existing), the outcome is much less pessimistic about the future of employment. The presentation is concluded with a brief discussion of several policy interventions to overcome adverse effects of robotization and to enhance the dynamic efficiency of structural change.

About the speaker

Ben Vermeulen holds an MSc in Innovation Sciences (w/hon), a PhD in Industrial Engineering, and had a long career as professional Software Engineer. Currently, Ben is a post-doctoral research in Innovation Economics studying the impact and design of robots.

KAROLINA ZAWIESKA

Name	Karolina Zawieska, Research Fellow, PhD
Affiliation	De Montfort University, United Kingdom
Title	**Collaborative Learning for Ethical Robot Design**
Session	Workshop 8: Exploring Ethical Responsibilities Through Democratic Participation and Expert Panel Discussion
Time and location	Thursday, February 15, 10.30-12.00 and 14.30-16.30, Room IV UC, Seminarraum III

Abstract

Recently, there have been numerous attempts to develop ethical guidelines for roboticists and ethical robot design. Depending on the area of robot application, such attempts may take form of institutionalized initiatives, research committees, public debates and so on. This work discusses ethics in robotics through the lens of collaborative learning and on the example of the educational social robot. Both the design process and learning are viewed here as processes and practices developed together by a variety of actors located in specific material and socio-cultural contexts. In order to address ethical concerns, robot designers and robot users collaborate, communicate and act together while sharing specific educational goals. Such a collaborative process, however, often remains tacit, and hence, it requires further deliberate reflection on what meanings ethics has for different actors, what language they use and what learning strategies they apply to develop ethical frameworks for a given type of robots. The example of the educational robot shows that while there has been a common agreement on the need of building robots and using them in a way that robots serve and bring added value to the society, the actual development and application of ethical principles remains a largely informal and intuitive process. The conclusion is that ethics to a large extent remains in the domain of "being" rather than only "doing", and hence, it often defies collaborative attempts to translate ethics into individual responsibilities or a specific code of conduct.

About the speaker

Karolina's research interests include social robotics and roboethics. She is a postdoctoral research fellow at De Montfort University, UK. Within her collaboration with the Industrial Research Institute for Automation and Measurements PIAP, Poland, she has also been involved in the UN CCW debate on Lethal Autonomous Weapons Systems (LAWS). Her recent publications include the following:

- Liu, H.-Y., Zawieska, K. (2017). From responsible robotics towards a human rights regime oriented to the challenges of robotics and artificial intelligence. *Ethics and Information Technology*, Springer.
- Zawieska, K. (2017). An ethical perspective on autonomous weapon systems. *UNODA Occasional Papers - Np. 30, November 2017. Perspectives on Lethal Autonomous Weapon Systems.* United Nations: 49-56.

NIELS CHRISTIAN MOSSFELDT NICKELSEN

Name	Niels Christian Mossfeldt Nickelsen, Assoc. Professor
Affiliation	Danish School of Education (DPU), Aarhus University, Denmark
Title	**Human-Robot proximity. Assistive Robotics in Care for the Disabled**
Session	Workshop 8: Exploring Ethical Responsibilities Through Democratic Participation and Expert Panel Discussion
Time and location	Thursday, February 15, 10.30-12.00 and 14.30-16.30, Room IV UC, Seminarraum III

Abstract

The presentation clarifies ongoing transformations in the care providers work practice and learning as occasioned by feeding assistive robotics (FAR). Citizens with low or no function in their arms are candidates to use FAR. Although the authorities in Denmark endorse this technology, it proves difficult both to recruit suitable citizens and to ensure implementation and sustained use over an extended period. By using material semiotics (Mol, Moser and Pols, 2010) as an analytic resource, both technological imaginaries (Jasanoff & Kim, 2015) and infrastructural reconfigurations (Slota & Bowker, 2017) implicated by FAR is examined. Despite the fact that the FAR intends to fit neatly into the work, home and day care environments, it seriously interferes with existing care routines. The food needs to be of a certain kind. It has to be prepared in certain ways, and the care provider has to monitor the meal closely. This is elucidated by way of two cases. A successful use over a long period, and a situation where the user had to stop using the FAR due to neck pain. On this ground, the notions of "tinkering" and "silent work" are discussed. The presentation takes its empirical outset in observations of meals with FAR and 11 interviews with roboticists and affected stakeholders.

About the speaker

Niels Christian Mossfeldt Nickelsen is a trained clinical psychologist. He holds an associate professorship at Aarhus University, Danish School of Education. His research focuses on the effects for health care professionals of advanced technology.

WORKSHOP 9

Names	Michael Funk[1] Bernhard Dieber[2]
Affiliations	[1] University of Vienna, Austria [2] JOANNEUM RESEARCH, Austria
Title	**Workshop 9: Yumi in Action! Ethics and Engineering as Transdisciplinary Robotics Performance**
Time and location	Thursday, February 15, 14.30-15.30, Room I UC, Hörsaal C 1
Abstract	This workshop aims to bring together philosophy of technology and robotics engineering with a focus on a concrete robotics application: the "ABB Yumi". Following a transdisciplinary methodology concrete technical applications of this robot are practically performed, explained by a robotics expert and commented by a philosopher of technology. Thereby the focus will be on responsibility, risk and security as both technical as well as philosophical concepts; and on the question: How is the VDI/FEANI ethics-codex "Fundamentals of Engineering Ethics" (https://www.vdi.de/fileadmin/media/content/hg/17.pdf) concretely applied while using the robot Yumi?

BERNHARD DIEBER

Name	Bernhard Dieber, Head of research group "Robotic Systems"
Affiliation	JOANNEUM RESEARCH, Institute for Robotics and Mechatronics, Klagenfurt, Austria
Title	**The challenges and perspectives of human-robot collaboration**
Session	Workshop 9: Yumi in Action! Ethics and Engineering as Transdisciplinary Robotics Performance
Time and location	Thursday, February 15, 14.30-15.30, Room I UC, Hörsaal C 1

Abstract

Collaborative robots have been trending in research and industry over the last years. They are specially constructed to safely work alongside of humans where contact is possible and sometimes even intended. In this talk, we will have a live presentation of the ABB YuMi Robot to show the capabilities and limits of the current generation of collaborative robots. This will be supported by multimedia from the ROBOTICS lab in Klagenfurt and references to the international state-of-the-art. A special focus is set to applications of collaborative robots outside manufacturing (e.g., intralogistics, medicine).

The aspects of safety and security of robots are especially critical in robotic systems that are working in close proximity to humans. Here, safety denotes the guaranteed absence of physical damage caused by a robot while security means the hardening against cyber-attacks. Both, safety and security must be jointly considered when building collaborative robotic applications. In this talk we will briefly sketch which safety measures can be taken in collaborative robots and how security can be deeply integrated to achieve trustworthy robots.

About the speaker

Bernhard Dieber is the head of the research group Robotic Systems at the Institute for Robotics and Mechatronics of JOANNEUM RESEARCH. He received his Master's degree in applied computer science and PhD in information technology from the Alpen-Adria Universität Klagenfurt. His research interests include robotics software, security and dependability of robotic systems, visual sensor networks, embedded systems and middleware.

MICHAEL FUNK

Name	Michael Funk, University Assistant, Philosophy of Media and Technology
Affiliation	Department of Philosophy, University of Vienna, Austria
Title	**Responsibility, Risk and Security as Transdisciplinary Challenges in Robot Ethics**
Session	Workshop 9: Yumi in Action! Ethics and Engineering as Transdisciplinary Robotics Performance
Time and location	Thursday, February 15, 14.30-15.30, Room I UC, Hörsaal C 1

Abstract

Responsibility, risk and security are both technical as well as philosophical concepts that play a crucial role in human-robot-interactions. After the first technical presentation in this second talk philosophical conceptualizations of these issues will be presented. The genuine focus is on the question: How is the VDI/FEANI ethics-codex "Fundamentals of Engineering Ethics" (https://www.vdi.de/fileadmin/media/content/hg/17.pdf) concretely applied while using the robot Yumi?

About the speaker

www.funkmichael.com

In February 2016, Michael Funk, BA MA took up a PraeDoc postition at the chair of Philosophy of Media and Technology at the University of Vienna. Hitherto he had been employed at the TU Dresden (2007 - 2015), where he also completed his studies in Philosophy, German philology, and History. Currently he is working on his PhD thesis which has the working title "Transdisciplinarity in Philosophy of Technology". His research interests touch the areas of philosophy of technology, philosophy of sciences, applied ethics, technology-ethics and robot-ethics. Moreover, he does research in the fields of philosophy of biology and philosophical anthropology, and philosophy of music. Current publications include:

- Coeckelbergh, Mark & Michael Funk 2018: „Wittgenstein as a Philosopher of Technology" in: Human Studies. Online first 12 January 2018: http://rdcu.be/ECFz
- Funk, Michael, Silvio Leuteritz & Bernhard Irrgang (eds.) 2017: Cyberwar @ Drohnenkrieg. Neue Kriegstechnologien philosophisch betrachtet. Würzburg.
- Funk, Michael & Bernhard Irrgang (eds.) 2014: Robotics in Germany and Japan. Philosophical and Technical Perspectives. Frankfurt am Main a.o.

WORKSHOP 10

Name	Oliver Schürer
Affiliation	Technische Universität Vienna, Austria
Title	**Workshop 10: Cultural Spaces, Humanoid Robotics and Human Work: Performance and Debate**
Time and location	Thursday, February 15, 14.30-16.30, Room II, Hörsaal C 2

Abstract

In urgency to govern the emergent robot development, the European Committee published a draft report on "Civil Law Rules on Robotics", in which privacy, general well-being, and job-loss through automation are the main issues raised. Surprisingly, there is next to nothing in this report on changes in public, semi-public, private, and intimate spaces – that is, of cultural spaces. Where stationary technologies reach their limits, mobile and autonomous robots introduce new options, allow for new markets and fuel economic growth. Hence humanoid robots are about to enter relationships with spatial and social structures, act within these – and will form them to a certain extent. They will take in a completely novel position besides existing technical objects, plants, animals and humans, leading to profound spatial as well as lifeworld consequences.

Human phantasies of the use of humanoid robots come in a variety of guises: from workers, soldiers and servants to entertainers, nurses and playmates, including sex partners. But policy agenda pushes the social aspect of assistive robots for care (elderly, dementia) in the forefront of its research agendas. In any case, they will not only become functional assistants and next media, but moreover also socio-cultural actors in cultural spaces, always already transgressing thresholds between culturally conditioned public, semiprivate, private and intimate spaces.

The workshop will explore the socio-political consequences of understanding robots as companions in social roles shaped by cultural and economic hegemonies, that locates humanoids in intimate proximity to humans.

OLIVER SCHÜRER

Name	Oliver Schürer, Senior Scientist, Dr.techn, Dipl.-Ing.
Affiliation	Department for Architecture Theory and Philosophy of Technics, ATTP Institute of Architecture Sciences, Vienna University of Technology, Austria
Title	**Cultural Spaces, humanoid robotics and human work; performance and debate**
Session	Workshop 10: Cultural Spaces, Humanoid Robotics and Human Work: Performance and Debate
Time and location	Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

Spaces, whether private households, semi-private business premises or public spaces are not static but constantly "produced" (Lefebvre, 1991) according to cultural constraints. Hence, they are in a permanent state of change (Csáky 2009) framed by cultural values, rules, and knowledge. The production of space is never a neutral process, but always co-determined by power structures of economic interests and cultural hegemonies. Just like space, technology too is not neutral but rather part of, and deeply involved in those hegemonies. Despite the fact that humanoid robots recently started to appear in private and semi-private spaces, the technology is expected to operate in all spaces humans populate. Humanoid robots are "technical objects" (Simondon, 2012) that are understood as actors in human space. Human phantasies of the use of humanoid robots come in a variety of guises: from workers, soldiers, servants and butlers to entertainers and playmates, including sex partners. But policy agenda pushes the social aspect of assistive robots for care (elderly, autism, dementia) in the forefront of its research agendas. By leaving out the issue of space, its production, transformation and reproduction, aspects of perception as cultural casting of societies and of work as important glue of societies, complex topics that would hint towards utopian post work societies are left out.

About the speaker

Oliver Schürer, Senior Scientist Dipl.-Ing. Dr.techn., is researcher, curator, editor and author as well as Senior Scientist and Deputy head at the Department for Architecture Theory and Philosophy of Technics, Vienna University of Technology. He did numerous guest lectures, and international publications mainly on the cultural relations of technology and media in architecture. He curated several smaller and larger conferences. Besides architecture theory, his research projects are often theory driven experimentations. He combines the interaction of different disciplines to realize experimental tests of the theoretical concepts. In 2015, he founded the transdisciplinary group H.A.U.S. among humanities, engineering and the arts, to conduct research in "Humanoid robots in Architecture and Urban Spaces".

CHRISTOPH HUBATSCHKE

Name

Christoph Hubatschke, PhD Researcher

Affiliation

Department of Philosophy, University of Vienna, Austria

Title

'Konfidenz' in Robot Companions? Towards a political understanding of human-robot-interactions

Session

Workshop 10: Cultural Spaces, Humanoid Robotics and Human Work: Performance and Debate

Time and location

Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

Perfection, serialized doppelgangers, exact movements in incredible speed, effortless endurance, sleek designs – these and many more reasons made robots the protagonists of dreams and nightmares alike, and lie not only at the core of robot cultures, but also of coming economical and societal changes, from automation of work, to robots as supposed care workers for an ever ageing society. Critically asking for the economic, political and ethical interests this paper challenges the very idea that for humanoid robots to be accepted, trust and canniness should be evoked.

The paper asks for possibilities of a different relationship to humanoids, not built on trust or mistrust, on uncanniness or familiarity, but on a relationship which doesn't try to solve the ambivalences: a hybrid companionship. This paper proposes to further develop Donna Haraway's concept of "cross-species trust", which she developed in regard to domesticated animals, also to the question of robots. For Haraway companionship is an important ground on which a deep relationship, in which the agency of the other is respected and the perspective of the other is internalized and included, is grounded.

About the speaker

Expanding Haraway, the paper therefore proposes the concept of Konfidenz. What does the concept of Konfidenz mean in the context of care work, which is mostly feminized work and economically as well as socially marginalized. Is something like post-work-society possible in a capitalistic system? Christoph Hubatschke is political scientist and philosopher living in Vienna. He is scientific researcher at the Philosophy Department at the University of Vienna, where he also financed by the Austrian Academy of Sciences writes his PhD on the role of new technologies in Social movements. At the moment he is visiting research fellow at Goldsmiths, London, financed through the Marietta-Blau-scholarship from the OEAD. He is founding member of the interdisciplinary research group H.A.U.S. Interests of research cover poststructuralist political theory, the politics and ethics of humanoid robots, theory of democracy, philosophy of technology, social movement studies, Deleuze-Studies and Monster-Studies.

MARTINA MARA

Name	Dr. Martina Mara, Key Researcher
Affiliation	Ars Electronica Futurelab
Title	**Between empathy and fright: The complicated issue of human-likeness in machines**
Session	Workshop 10: Cultural Spaces, Humanoid Robotics and Human Work: Performance and Debate
Time and location	Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

We humans have a natural tendency to anthropomorphize objects, that is, we imbue "the imagined or real behavior of nonhuman agents with humanlike characteristics, motivations, intentions, and emotions" (Epley, Waytz, & Cacioppo, 2007). We give names to our cars, we pay compliments to computers (Reeves & Nass, 1996), and we feel with robots when they are tortured (Rosenthal-von der Pütten, Krämer, Hoffmann, Sobieraj, & Eimler, 2013). At the same time, many people are afraid of robots in particular when they are humanlike. According to the "uncanny valley" phenomenon (Mori, 1970; Mara, 2015), humanoid agents that reach a certain point of high but not perfect visual realism elicit aversive user responses — or more specifically, they give us the creeps. Recent research on the "uncanny valley of the mind" (Stein & Ohler, 2017; Appel, Weber, Krause, & Mara, 2016) suggests that people even experience unease when faced with virtual chatbots that appear too humanlike, that is, too intelligent or "emotional". People's desire to see human-likeness in artifacts on the one hand and people's fright of highly humanlike robots on the other hand leads to the question: Is there a right level of human-likeness in machines? — A question of increasing relevance from a technical, psychological, and ethical point of view.

About the speaker

Martina Mara is a media psychologist and head of the RoboPsychology research division at the Ars Electronica Futurelab in Linz. In collaboration with worldwide partners in business and science, she explores how robots should look like, behave, and communicate in order to establish comfortable interaction experiences for varying user groups. Martina earned her doctorate at the University of Koblenz-Landau with a dissertation on anthropomorphic machines. She regularly delivers addresses at international conferences, has been a visiting lecturer at several universities, and writes about social impacts of technology in her weekly tech column for the newspaper "Oberösterreichische Nachrichten". Since 2017, she is a member of the Austrian Council for Robotics.

WORKSHOP 11

Name	David Gunkel
Affiliation	Northern Illinois University
Title	**Workshop 11: Moral Status of Robots**
Time and location	Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

Although considerable effort has been expended on the question of robots and responsibility, the question concerning "robot rights" remains conspicuously absent or at least marginalized. This workshop is designed to respond to and advance research on this other question. It is interested in and dedicated to debating the social situation and status of robots. And it does so not to be controversial, even if "controversy" is often the result of this kind of philosophical provocation, but in order to respond to very real and pressing challenges concerning innovations in technology and the current state and future possibilities of moral philosophy.

MARK COECKELBERGH

Name

Mark Coeckelbergh, Professor

Affiliation

Department of Philosophy, University of Vienna, Austria

Title

Can and Should Robots Have Rights?

Session

Workshop 11: Moral Status of Robots

Time and location

Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

New cases such as the humanoid robot Sophia continue to raise questions whether robots should have rights and, more generally, what the moral status of robots is. In previous talks the speaker has outline a relational approach to moral status. In this talk he further explores the practical implications of this approach, in particular for the discussion about rights. The initial question is whether a relational approach necessarily means giving rights to robots such as Sophia. The answer is negative, and this answer is unpacked in the following ways. First, it is argued that approaching the question of moral status in terms of rights (and indeed in terms of moral status) is itself problematic, since it assumes a properties approach which distances. Second, it is argued that a relational approach, by its very nature, is hesitant when it comes to giving a principled answer to the question, removed from the situation and the encounter. Third, it is argued that while one could derive a normative precautionary kind of principle (as proposed by the author in his previous talk at Robophilosophy) from the largely description and understanding-oriented approach, this only applies as a kind of default attitude in cases of doubt, and it is doubtful whether Sophia presents such a case. There is no real doubt regarding its status. Fourth, it is shown that the case of Sophia is nevertheless interesting since it shows how an artefact is embedded in many meanings that are available in a culture or form of life (this claim relates to recent work of the author using Wittgenstein) and how important language is in constructing and ascribing moral status (see Growing Moral Relations and Using Words and Things). Finally, in response to Gunkel it is argued that the concerns and content of the relational approach can also be formulated as a virtue ethics, albeit a very non-Aristotelian one.

About the speaker

Mark Coeckelbergh is Professor of Philosophy of Media and Technology at the Department of Philosophy, University of Vienna, Austria and the current President of the international Society for Philosophy and Technology. He is also part-time Professor of Technology and Social Responsibility at the Centre for Computing and Social Responsibility, De Montfort University, UK, and member of the Robotics Council of the Austrian *Bundesministerium* for Traffic, Innovation, and Technology. He also advises the Foundation for Responsible Robotics. Previously he was Managing Director of the 3TU Centre for Ethics and Technology. His publications include *Using Words and Things* (Routledge 2017), *New Romantic Cyborgs* (MIT 2017), *Money Machines* (Ashgate 2015), *Environmental Skill* (Routledge 2015), *Human Being @ Risk* (Springer 2013), *Growing Moral Relations* (Palgrave Macmillan 2012), and numerous articles in the area of philosophy of technology, in particular robotics and ICT. He is an expert in ethics of robotics and artificial intelligence.

JOHN DANAHER

Name	Dr John Danaher, Lecturer in Law
Affiliation	School of Law, NUI Galway, Ireland
Title	**Procreative Beneficence and the Moral Status of Robots**
Session	Workshop 11: Moral Status of Robots
Time and location	Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

Suppose that robots can (and maybe should) have moral status/standing. Does this mean that we should apply principles of procreative ethics to their creation? For example, should a principle of procreative beneficence apply? According to this principle, if we are choosing to procreate human offspring then we have a duty to procreate the best possible offspring. Could a similar principle apply when it comes to the creation of robots? In this paper, I make two arguments in response to this question. First, I argue that although the principle of procreative beneficence is controversial when it comes to the conception and gestation of human offspring, many of the objections to it focus on its technical feasibility and the undue burden it would place on women. These objections fall away, to at least some extent, when it comes to designing and engineering robots. That said, there is an obvious objection: when it comes to procreating humans we have little choice but to create beings with significant moral status; when creating robots we have much greater freedom. Hence, there is reason to think that our procreative duties are much more stringent than our creative duties. This leads to my second argument which is that we may overstate our freedom with respect to the design and engineering of robots and understate our freedom with respect to the conception and gestation of children. Consequently, the analogy between the two cases is stronger than it first appears.

About the speaker

Dr John Danaher is a lecturer at the School of Law, NUI Galway. His research focuses primarily on the ethics of emerging technologies, with a particular interest in human enhancement, robotics, AI and algorithmic governance. He is the co-editor, along with Neil McArthur, of the book *Robot Sex: Social and Ethical Implications* (MIT Press, 2017).

ANNE GERDES

Name	Anne Gerdes, Assoc. Professor
Affiliation	Department of Design and Communication, The University of Southern Denmark
Title	**Robots - Rights and Wrongs**
Session	Workshop 11: Moral Status of Robots
Time and location	Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

Gunkel thinks the time has come where we ought to discuss whether robots are worthy of moral consideration. Moreover, he argues that we need to reframe the inquiry itself (Gunkel, 2017) to overcome the underlying human centered assumption in current approaches to robot rights. According to Gunkel, the contemporary debate about robot rights rests on an instrumental theory of technology, which is out of touch with the practice surrounding human-robot interaction. Hence, although Sophia is more about hype than AI, an open-minded inquiry is needed, one that "remains (..) open, to others and other forms of otherness" (Gunkel, 2017). Consequently, it might seem reasonable to skip discussions about what robots really are and instead focus on how they appear to us and how we engage with robots. As such, the question of social and moral status comes to "depend on (..) how she/he/it ...supervenes before us and how we decide (..) to respond (..). In this transaction, the "relations are prior to the things related" (Gunkel, 2017). However, the relational turn, eager to promote a kind of social constructivist perspective, in which relations trumps facts, risks losing sight of (1) why human-human relations are unique, and (2) why we desperately need to advance computational thinking in society.

References:
Gunkel, D. J. (2017) The Other Question: can and should robots have rights? Ethichs Inf TEchnol.
Wing, J. M. (2014) Computational Thinking Benefits Society: http://socialissues.cs.toronto.edu/index.html%3Fp=279.html (accessed 12,10,17)

About the speaker	Anne Gerdes teaches courses on value-based design and ICT & Ethics at BA and MA level. She is the author of over 50 articles. Her research interests are found in artificial intelligence, technologies of automated decision making, privacy, and moral machines.

More info at:
http://findresearcher.sdu.dk/portal/en/persons/anne-gerdes(086a4c9e-1fbb-4474-b9f3-1d653ba70bbf).html

DAVID GUNKEL

Name

David J. Gunkel, Professor

Affiliation

Department of Communication
Northern Illinois University
USA

Title

Can and Should Robots Have Rights?

Session

Workshop 11: Moral Status of Robots

Time and location

Thursday, February 15, 14.30-16.30, Room III UC, Aula

Abstract

The majority of published research addressing the moral and legal challenges of artificial intelligence (AI) and robotics typically focuses on aspects of machine responsibility and agency. But this is only one half of the story. This paper addresses the other side of the issue, taking up and investigating whether and to what extent robots and AI either can or should be the subject of moral and legal rights. The examination of this subject matter proceeds by way of three main steps or movements. It begins by looking at and analyzing the form of the inquiry itself. There is an important philosophical difference between the two modal verbs that organize the investigation: Can and should robots have rights? This difference has considerable history behind it that influences what is asked about and how. Second, capitalizing on this fundamental verbal distinction, it is possible to identify four modalities concerning robots and the question of rights. The second section will detail and critically assess these four modalities as they have been deployed and developed in the current literature. Finally, finding none of the available arguments to be entirely satisfactory, the paper concludes by proposing another alternative, a way of thinking otherwise about robots and rights that effectively challenges the existing rules of the game and provides for other ways of theorizing moral and legal standing that can scale to the unique challenges and opportunities that are confronted in the face of emerging technology.

About the speaker

David J. Gunkel is an award-winning educator and author, specializing in the philosophy of technology. He is the author of over 70 scholarly articles and has published nine books, including *The Machine Question: Critical Perspectives on AI, Robots, and Ethics* (MIT Press, 2012), *Of Remixology: Ethics and Aesthetics After Remix* (MIT Press, 2016), and *Robot Rights* (MIT Press, 2018). He currently holds the position of Distinguished Teaching Professor in the Department of Communication at Northern Illinois University (USA) and is the founding co-editor of the *International Journal of Žižek Studies*.

More info at http://gunkelweb.com

WORKSHOP 12

Names

Jennifer Robertson[1]
Marco Nørskov[2]

Affiliations

[1] University of Michigan, USA
[2] Aarhus University, Denmark and Hiroshi Ishiguro Laboratories Advanced Telecommunications Research Institute International, Japan

Title

Workshop 12: Robotics in Japan: Local, Global, and "Glocal" Influences and Applications

Time and location

Friday, February 16, 10.30-12.00 and 14.30-16.30, Room II UC, Hörsaal C 2

Abstract

Technology, including robotics, and culture are intertwined and even mutually constitutive processes. Both technology and culture operate on many levels that are categorized for the purposes of this workshop as global, local, and "glocal." As evident in popular and scholarly media, robots made in Japan are often described as inseparably bound to Japanese culture whereas robots made in Europe or the United States are treated as if immune from local/cultural influences and priorities. Our workshop will problematize and fine-tune the category of "Japanese robots" by exploring robots designed and manufactured in Japan AND deployed in local, global, and "glocal" contexts and environments. In addition to providing empirical information on new directions and applications in robotics, a key objective of the workshop is the development of a method of researching and representing robots and robotics that is attentive and sensitive to both the intersections and divergences of local and global, and glocal, applications.

HIRONORI MATSUZAKI

Name	Hironori Matsuzaki, Senior Researcher
Affiliation	Carl von Ossietzky University of Oldenburg, Germany
Title	**Military Robot Applications beyond Post-War Pacifist Norms? Japanese Robotics at a Crossroads**
Session	Workshop 12: Robotics in Japan: Local, Global and "Glocal" Influences and Applications
Time and location	Friday, February 16, 10.30-12.00 and 14.30-16.30, Room II UC, Hörsaal C 2

Abstract

My paper addresses a significant shift in Japanese robotics triggered by recent changes in domestic science policy. A government program to promote military research has (re)kindled a controversy over pacifist norms within local academia and has posed the question of how to draw a sharp line between science and military. The problem of "dual use" becomes all the more crucial for robotics, especially because its products are developed as versatile apparatuses that potentially find wide-ranging applications. Using the concept of "institutionalized set use," I analyze how Japanese roboticists cope with challenges emerging from this development.

About the speaker

Senior Researcher, Carl von Ossietzky University of Oldenburg (DE). Currently engaged in the research on ELS issues of care robotics (within the framework of the project "Pflegeinnovations-zentrum"—funded by German Federal Ministry of Education and Research). He has published on a great variety of topics related to Japanese robotics, such as legal status and social role of anthropomorphic robots in Japan. Furthermore, he has conducted ethnographic research on robotic human science and social robotics in Europe and Japan.

Homepage: www.researchgate.net/profile/Hironori_Matsuzaki3

MARCO NØRSKOV AND ANEMONE PLATZ

Names	Marco Nørskov, Assoc. professor[1] and Cooperate Researcher[2] Anemone Platz, Assoc. professor[3]
Affiliations	[1] Research Unit for Robophilosophy, Aarhus University, Denmark [2] Hiroshi Ishiguro Laboratories, ATR, Japan [3] School of Culture and Society, Aarhus University, Denmark
Title	**Android Robotics and the Conceptualization of Human Beings**
Session	Workshop 12: Robotics in Japan: Local, Global and "Glocal" Influences and Applications
Time and location	Friday, February 16, 10.30-12.00 and 14.30-16.30, Room II UC, Hörsaal C 2

Abstract

Japan has for decades been a first-mover and pacemaker with respect to the development of humanoid and android robots [1]. In this conceptual paper, we aim to demonstrate how certain android robotic projects can be embedded and interpreted within a Japanese notion of nature, where the artificial is not opposed to nature and where conventionalized idealizations in general are cherished over original state of the latter [2]. Furthermore, we will discuss how android robots epitomize challenges to the macro and micro levels of society.

[1] J. Robertson, Robo Sapiens Japanicus: Robots, Gender, Family and the Japanese Nation, University of California Press, 2017.
[2] A. Kalland and P.J. Asquith, Japanese Perceptions of Nature - Ideals and Illusions, in: Japanese Images of Nature - Cultural Perspectives, A. Kalland and P.J. Asquith, eds., Curzon Press, Richmond, 1997, p. 36.

About the speakers

Marco Nørskov is Associate professor at the Research Unit for Robophilosophy, Aarhus University (DK) and cooperate researcher, at the Hiroshi Ishiguro Laboratories, ATR (JP). He has published several papers and book chapters on human-robot interaction with focus on phenomenology and intercultural philosophy, android science/philosophy.
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Anemone Platz is Associate professor at the School of Culture and Society, sociologist in Japan Studies, Aarhus University (DK). Her research interest focuses on the effect of changing family relations on lifestyle and living forms in Japan.
Homepage: www.person.au.dk/en/ostap@cas

JENNIFER ROBERTSON

Name	Jennifer Robertson, Professor
Affiliation	Departments of Anthropology and History of Art, and affiliate faculty, Robotics Institute, University of Michigan, USA.
Title	**Hegemonic Bipedalism: Cultures of Robotic Exoskeletons in Japan and the United States**
Session	Workshop 12: Robotics in Japan: Local, Global and "Glocal" Influences and Applications
Time and location	Friday, February 16, 10.30-12.00 and 14.30-16.30, Room II UC, Hörsaal C 2

| **Abstract** | This paper explores the types of bodies privileged and enhanced by the makers of robotic exoskeletons and the premium placed on bipedalism. Differences and similarities, and areas of overlap, in the wearable robotics industries in Japan and the United States are explored along with comparisons of products aimed at local and global consumers. Interrogations about dominant constructions of bodies and mobility from disability rights activists provide critical perspectives on the robotic exoskeleton industry. |

| **About the speaker** | Professor, Departments of Anthropology and History of Art, and affiliate faculty, Robotics Institute, University of Michigan (USA). An anthropologist of Japan, Robertson has published several articles exploring aspects of the robotics industry and human-robot relations in Japan. Her latest book is *Robo sapiens japanicus: Robots, Gender, Family, and the Japanese Nation* (University of California Press, Fall 2017). |
| | Homepage: www.jenniferrobertson.info |

JUNKO TERUYAMA

Name	Junko Teruyama, Assistant Professor
Affiliation	Faculty of Library, Information and Media Science, University of Tsukuba, Japan
Title	**Technology for Communication: The Use of Robots in the Treatment of Autism in Japan**
Session	Workshop 12: Robotics in Japan: Local, Global and "Glocal" Influences and Applications
Time and location	Friday, February 16, 10.30-12.00 and 14.30-16.30, Room II UC, Hörsaal C 2

Abstract

During the past ten years, there has been an increasing public interest in the identification and treatment of autism spectrum disorder (ASD) in Japan. Social robotics has established itself as one of the forerunners in this field, designing and building robots to elicit interaction and communication. This paper examines this trend through a critical interrogation of the meaning of "social engagement" aspired by such roboticists.

About the speaker

Assistant Professor at Faculty of Library, Information and Media Science, University of Tsukuba (JP). She earned her PhD in Anthropology from the University of Michigan in 2014. Her research focus is minorities such as children and teachers with disabilities in the Japanese school and education system as well as application of robotic technologies in this context.

Homepage: www.trios.tsukuba.ac.jp/en/researcher/0000003642

COSIMA WAGNER

Name	Cosima Wagner, Assistant Professor
Affiliation	Scientific Librarian and Research Fellow, Japanese Studies Department, Freie Universität Berlin, Germany
Title	**"Vision Assessment" of Robot Technology Futures in Japan–A Methodological Approach for the Analysis of Intersections between Robotics and Society in Japan**
Session	Workshop 12: Robotics in Japan: Local, Global and "Glocal" Influences and Applications
Time and location	Friday, February 16, 10.30-12.00 and 14.30-16.30, Room II UC, Hörsaal C 2

Abstract

Since the beginning of the 2000s the Japanese government has developed and promoted multiple scenarios for the implementation of robotics technology into everyday life, especially but not limited to the field of elderly care. This paper discusses the methodological approach of "technology futures" research (Technikzukünfte-Forschung) and its usefulness for the analysis of intersections between robotics and society in Japan. By peering into the "black box" of how processes of science and technology construction proceed, this paper examines how those processes shape, change, and/or reproduce specific constellations of societal order and governance.

About the speaker

Scientific Librarian and Research Fellow at the Japanese Studies department of Freie Universität Berlin (DE). She has extensively studied robots in Japan from a Science and Technology Studies approach and published various papers on this topic as well as the book *Robotopia Nipponica: Recherchen zur Akzeptanz von Robotern in Japan* (2013, Tectum).

WORKSHOP 13

Names

Kerstin Fischer, Professor[1]
Johanna Seibt, Professor[2]
Norbert Krüger, Professor[3]

Affiliations

[1] Department of Design and Communication, University of Southern Denmark, Denmark
[2] Department for Philosophy and the History of Ideas, Aarhus University, Denmark
[3] Mærsk McKinney Møller Institute, University of Southern Denmark, Denmark

Title

Workshop 13: Exploring Responsible Robotics Hands-On: A Conference Lab on Three Use Cases (SMOOTH Project)

Time and location

Friday, February 16, 14.30-16.30, Room I UC, Hörsaal C 1

Abstract

This workshop will take the form of a conference lab—it shall both illustrate and further explore in which ways wide.scope interdiscplinarity is an indispensable ingredient for the development of successful applications of social robotics. The workshop will discuss three use cases as envisaged in the context of the SMOOTH project; currently these applications, which concern transporting and guiding functions in an eldercare facility, are being developed by robotics engineers in close collaboration with the staff of the care facility, with focus on practical functionalities. Fundamental questions about the design of the robots (shape and movements) are still open. The workshop will feature short 'booster talks' by specialists in design, ethics, interaction studies, and gerontopsychology. A joint moderated discussion with all participants will subsequently explore the significance of design choices in several regards (therapeutic, socio-cultural, and ethical). Workshop participants will get the chance to communicate their views in different ways during the workshop The main aim of the workshop is to use the concrete design problems of the SMOOTH project in order to address general methodological questions about the implementation of current R&D paradigms currently discussed under the headers of "value-sensitive design," "design for values," "integrative social robotics," and "responsible robotics."

ASTRID WEISS

Name	Dr. Astrid Weiss, senior scientist
Affiliation	HCI Group, Institute for Design and Assessment of Technology, TU Wien, Austria
Title	**Laundry and Garbage collection – a reasonable scenario for a care facility robot?**
Session	Workshop 13: Exploring Responsible Robotics Hands-On: A Conference Lab on Three Use Cases (SMOOTH Project)
Time and location	Friday, February 16, 14.30-16.30, Room I UC, Hörsaal C 1

Abstract

Developing useful scenarios for (social) robots in care settings is a huge challenge above all balancing technical feasibility and user-centered affordances. The use case of laundry and garbage collection covers an existing organizational need in a case facility. I will discuss the technical feasibility as well as potential aspect of technology acceptance/rejection from a care-taker and care-receiver perspective.

About the speaker

I am a senior researcher at Vienna University of Technology (Austria). My current research focuses on Long-term Human-Robot Interaction with service robots. I am especially interested in the impact technology has on our everyday life and what makes people accept or reject technology. I hold a master's degree in sociology and a PhD in social sciences from the University of Salzburg. During my studies she specialized on methodologies of empirical social research and applied statistics. I publish in conferences such as HRI, RO-MAN, and ICSR and journals such as International Journal of Social Robotics, Autonomous Robots, and the Journal of HRI. I am regularly member of Program and Organizing Committees related to HRI research.

JOHANN LEHRNER

Name	Johann Lehrner, Assoc. Prof. PD. Dr.
Affiliation	Department of Neurology, Medical University of Vienna, Austria
Title	**Neuropsychology of Dementia and robots**
Session	Workshop 13: Exploring Responsible Robotics Hands-On: A Conference Lab on Three Use Cases (SMOOTH Project)
Time and location	Friday, February 16, 14.30-16.30, Room I UC, Hörsaal C 1
Abstract	Discussion regarding neuropsychological functions in patients with dementia and robot care.
About the speaker	Research in the fields of neurocognition and neurodegenerative disease.

MAJKEN KIRKEGAARD RASMUSSEN

Name	Majken Kirkegaard Rasmussen, Assistant Professor
Affiliation	Socio-Technichal Design Group, Engenieering, Aarhus University, Denmark
Title	**The Shape of Robots**
Session	Workshop 13: Exploring Responsible Robotics Hands-On: A Conference Lab on Three Use Cases (SMOOTH Project)
Time and location	Friday, February 16, 14.30-16.30, Room I UC, Hörsaal C 1

Abstract

The physical form of todays robots are predominantly designed with reference to either; a machine, a human, an animal, a living thing, or caricatured physical attributes. While all of these form references might provide the user with specific clues about the robots capabilities or how to interact with it, then from a design perspective it raises the question of whether these are the most successful form references, if we want robots to integrate into the homes and lives of people. Imagine a common room at an elderly care facility; the room is filled with wooden furniture, rounded shapes and soft colorful textiles. What kind of a robot would blend in here – a plastic dog, a machine-like blue metal one, a shiny white futuristic one with a caricatured face, or one looking like the living care staff? The example robots are illustrative of the aesthetics and form references often employed, however other form references might be imagined, such as objects, furniture or interiors. This type of form references are seldom pursued within robotics, although they might provide new ways of thinking about how robots could look, or integrate into people's lives and homes.

During the talk, I will reflect on the physical design of the robots in relation to the three cases, focusing on the type of form references chosen, the relation between form and purpose, and feedforward.

About the speaker

Majken Kirkegaard Rasmussen is Assistant Professor at the Department of Engineering at Aarhus University. She has a background in architecture, product and interaction design, and specializes in shape-changing interfaces and (social) robotics design. The work takes its outset in a constructive design approach to research, where design is used as means of exploration and creation of knowledge. Her work focuses on exploring physical appearance, materiality, kinematic profiles, interaction and experience of robots and physically dynamic artefacts (e.g. 1).

[1] Erik Grönvall, Sofie Kinch, Marianne Graves Petersen, and Majken K. Rasmussen. 2014. Causing commotion with a shape-changing bench: experiencing shape-changing interfaces in use, CHI 2014.

RAFFAELE RODOGNO

Name	Raffaele Rodogno
Affiliation	Department of Philosophy and History of Ideas, Aarhus University, Denmark. Member of the Research Unit for Robophilosophy and the INSOR project group (www.integrativerobotics.org)
Title	**The Ethics of Guidance Robots**
Session	Workshop 13: Exploring Responsible Robotics Hands-On: A Conference Lab on Three Use Cases (SMOOTH Project)
Time and location	Friday, February 16, 14.30-16.30, Room I UC, Hörsaal C 1

Abstract

I will explore some of the ethical issues that can possibly arise by an application such as guidance robots in elderly care residences. As I understand the current design, some residents will be accompanied by robots while others will be accompanied by human carers. The first issue, that springs to mind involve perceptions of justice and self-worth. How will the resident feel about being accompanied by a robot rather than a person? Will she be indifferent, if not happy about the change, or will she feel like a second class "resident" on whom human company cannot be spared? Will she think that it is unfair that others get to be with humans but not her? Inversely, some residents may envy those who get to try chatting with the robots, while they are being denied that opportunity. A second set of issues has to do with cases where the resident is unco-operative. Human carers may have learned subtle techniques involving verbal exchanges as well as body language and light touching to nudge and persuade residents to come to the dining room when it is time. But what about the robot at issue? What is it to do when the resident refuses to leave the room or suddenly walks in the wrong direction? The third question is more general: has the relative loss of human contact a positive or negative effect (or only a negligible one) on the resident's well-being? Is the idea that loss in some domain is to be made up in increased contact in other domains?

About the speaker	Rodogno specializes in ethics, moral psychology, political science, and roboethics. Rodogno has published extensively on emotions, their relationship to values, conflicts, and moral decision making. He investigates human robot interaction from within a comprehensive approach to moral psychology that focuses on the role of attachments for human well-being and the goodlife. He has recently published articles on the ethics of social robots in elderly care, the moral agency of robots, and the ethics of algorithmic decision making.

WORKSHOP 14

Name	Bertram Malle
Affiliation	Brown University, USA
Title	**Workshop 14: Self-Driving Fast Towards Us - Social and Ethical Implications of Autonomous Vehicles**
Time and location	Friday, February 16, 14.30-16.30, Room IV UC, Seminarraum III

Abstract

The rapid advance of technology supporting autonomous vehicles (AV) places significant demands on scholars, legislators, and the general public to grapple with the many social and ethical implications that this completely new form of transportation brings. This workshop features scholars from numerous disciplines to ask and discuss probing questions about a society with AVs: How and where will people live, and who will benefit? What legal frameworks are needed to integrate AVs into society? Who brings AVs in line with social and moral norms, and who is responsible when they violate those norms?

KENWORTHEY BILZ

Name

Kenworthey Bilz, Professor of Law

Affiliation

University of Illinois College of Law, U.S.A.

Title

Unintended consequences of autonomous vehicles

Session

Workshop 14: Self-Driving Fast Towards Us - Social and Ethical Implications of Autonomous Vehicles

Time and location

Friday, February 16, 14.30-16.30, Room IV UC, Seminarraum III

Abstract

Autonomous Vehicles (AV) will bring vast and obvious benefits, such as decreased injuries and deaths from vehicle collisions, and increased access to transportation to groups who currently physically or financially cannot drive. The magnitude of these benefits may be up for debate, but their existence really is not. But there are other, less obvious effects of this technology that are less certain and less predictable in both their form and their magnitude, yet are no less important: environmental and economic effects. AVs are likely to result in lower rates of individual car ownership and more efficient driving techniques, which should lessen the negative effect of driving on the environment. On the other hand, decreased costs might result in more miles being driven overall. AVs are also likely to shape land use decisions by both government and private actors, which could dramatically alter both urban and rural/suburban landscapes. Some of these effects could be good, but many could be devastating to conventional environmentalist goals.

AVs are also likely to profoundly alter the economy in ways beyond just decreasing transportation costs. AVs will also cause massive job losses and dislocations, and disruptions in many industries that currently depend on (or at least importantly interact with) the driving industry.

Policy makers need to begin planning now to ensure that we come out the other side of this technology with net benefits to society, and to mitigate the inevitable harms that will accompany it.

About the speaker

Kenworthey Bilz focuses her scholarship on how social psychological processes can inform the study of law. Specifically, she is interested in how legal institutions, laws, rules and practices affect perceptions of legitimacy, morality, and justice, which in turn affect behavior. She draws most of her examples from the area of criminal law and evidence, and empirically tests her theories experimentally, using the theories and methods of social psychology. In addition to the University of Illinois, Prof. Bilz has taught at Northwestern, Duke and Notre Dame law schools.

BARBARA LENZ

Name	Barbara Lenz, Professor
Affiliation	DLR (German Aerospace Center) Institute of Transport Research; Institute of Geography, Humboldt University Berlin, Germany
Title	**Influences of automated driving on individuals' spatial and temporal behavior**
Session	Workshop 14: Self-Driving Fast Towards Us - Social and Ethical Implications of Autonomous Vehicles
Time and location	Friday, February 16, 14.30-16.30, Room IV UC, Seminarraum III

Abstract

Automated driving will provide new options for the ways in which people travel. In particular, the opportunity to spend travel time on activities other than driving will have major ramifications. As travel is no longer a "disutility" but can be integrated in everyday activity plans, accepted times and accepted distances for travel will change. Existing travel patterns allow for a first estimation of how attractive an alternative time use may be for different segments of road users. If travel times are less than 15 minutes (as this is the case for about 45% of all trips made on a weekday in Germany), using such time for alternative productive activities does not seem worthwhile to people. These findings are reinforced by surveys assessing how individuals perceive the utility of various alternative activities while riding in an autonomous vehicle: at the top of the list we find relaxing, not productive activities. While these considerations reflect a short-term perspective, individuals' spatial and temporal behavior may change in the long term. These changes will depend on a variety of factors such as the spatial pattern of real estate prices and incomes, social structure and life styles, and also built infrastructure.

About the speaker

Barbara Lenz is Director of the DLR Institute of Transport Research and Professor for Transport Geography at Humboldt University in Berlin. One core topic in her research on transport demand and travel behavior concerns the implications and effects of technology use both in the passenger and the freight sector. Dr. Lenz conducts extensive research on the interrelation of new information and communication technologies and travel behavior, the use of new platform-based mobility concepts, and automated driving technology from a user perspective. In 2016, Dr. Lenz co-edited a comprehensive book published by Springer on *Autonomous Driving: Technical, Legal and Social Aspects.*

VIRGINIA DIGNUM

Name	Virginia Dignum, Assoc. Professor
Affiliation	Delft Institute Design for Values, Delft University of Technology
Title	**Accountability, Responsibility, Transparency - ART for Autonomous Intelligent Systems**
Session	Workshop 14: Self-Driving Fast Towards Us - Social and Ethical Implications of Autonomous Vehicles
Time and location	Friday, February 16, 14.30-16.30, Room IV UC, Seminarraum III

Abstract

As intelligent systems are increasingly making decisions that directly affect society, perhaps the most important upcoming research direction in AI is to rethink the ethical and societal implications of these systems' actions. The urgency of these issues is acknowledged by researchers and policy makers alike. Methodologies are needed to ensure ethical design of AI systems, including means to ensure accountability, responsibility and transparency (ART) in system design. A deeper understanding of the ethics of control and autonomy requires us to integrate moral, societal, and legal values with technological developments in AI, both within the design process and in the deliberation algorithms employed by these systems. To this end, several design options can be considered, ranging from full autonomous ethical reasoning, to human-in-the-loop solutions, to infrastructure and institution-based approaches. All of these design options have consequences for the reasoning capabilities of the systems and for the kinds of societies we are creating. A deep analysis of these issues is needed, and at its core, it will identify our role and responsibility in guiding the future directions of AI in general and AVs in particular.

About the speaker

Virginia Dignum is Associate Professor of Social Artificial Intelligence at the Faculty of Technology Policy and Management at TU Delft. Dr. Dignum is Executive Director of the Delft Design for Values Institute, member of the Executive Committee of the IEEE Initiative on Ethics of Autonomous Systems, and co-chaired ECAI2016, the European Conference on AI. Her research focuses on value-sensitive design of intelligent systems and multi-agent organisations, and in particular on the ethical and societal impact of AI. In 2006, she was awarded the prestigious Veni grant from NWO (Dutch Organization for Scientific Research) for her work on agent-based organizational frameworks.

FILIPPO SANTONI DE SIO

Name	Filippo Santoni de Sio, Asst. Professor
Affiliation	Department Ethics/Philosophy of Technology, Delft University of Technology, the Netherlands
Title	**Meaningful Human Control over Automated Driving Systems**
Session	Workshop 14: Self-Driving Fast Towards Us - Social and Ethical Implications of Autonomous Vehicles
Time and location	Friday, February 16, 14.30-16.30, Room IV UC, Seminarraum III

Abstract

Our project aims at guiding a responsible transition toward automated driving. We will develop a theory of "meaningful human control" over Automated Driving Systems (ADS), and translate the theory into design guidelines, both at the technical and at the institutional level. "Meaningful human control" has been identified as key for the responsible design of autonomous systems operating in circumstances where human life is at stake (such as military operations), and has recently been analysed in more precise philosophical terms by Santoni de Sio and Van den Hoven (forthcoming). By preserving meaningful human control, human safety can be better protected and "accountability gaps" can be avoided. However, we still lack a satisfactory theory of what meaningful human control precisely means in relation to ADS, and how to achieve meaningful human control over ADS while at the same time reaping the potential benefits of the transition to (semi-)autonomous driving. Based on the methodology of "value-sensitive design," an interdisciplinary team of philosophers, traffic engineers and behavioural scientists is working together toward a definition of meaningful human control over ADS, which encompasses its conceptual, technical and behavioural dimensions. We also develop, implement, test and improve guidelines for "designing for meaningful human control" based on two case studies: "partial" and "supervised" autonomy.

About the speaker

My research interests are in the theory of moral and legal responsibility, and applied ethics of technology, with a focus on ethics of robotics. I am co-director of the NWO interdisciplinary research project "Meaningful Human Control over Automated Driving Systems" (2017-2020). My last book is the Routledge co-edited collection Drones and Responsibility: Legal, Philosophical and Socio-technical perspectives on Remotely Controlled Weapons; my last article is Meaningful Human Control over Autonomous Systems: A Philosophical Analysis (Frontiers in Robotics and AI, 2018). I have recently co-authored the 90-page report An Evaluation Schema for the Ethical Use of Autonomous Robotic Systems in Security Applications (White Paper No.1, Digital Society Initiative, University of Zurich).

BERTRAM MALLE

Name	Bertram F. Malle, Professor
Affiliation	Department of Cognitive, Linguistic, and Psychological Sciences, Brown University, U.S.A.
Title	**Do Autonomous Vehicles Need Moral Competence?**
Session	Workshop 14: Self-Driving Fast Towards Us – Social and Ethical Implications of Autonomous Vehicles
Time and location	Friday, February 16, 14.30-16.30, Room IV UC, Seminarraum III

Abstract

The entry of robots into human social communities is imminent, and so is the entry of Autonomous Vehicles (AV) into human transportation communities. In both cases, the ensuing human-machine interactions will be beneficial in many respects, but also unpredictable, confusing, and potentially dangerous. In light of such risks, some scholars have called for robots to have moral competence – capacities to recognize, learn, and obey moral norms as well as to form and communicate moral judgments. Should AV have such moral capacities as well? The answer to this question depends on the degree of sociality that AV will have in the future. If they are social partners in transportation (akin to a private driver) they will need certain social-moral capacities; if they merely carry people from one location to another (akin to an escalator), they will get by with very few such capacities. I will excerpt results from our larger research program on moral machines to describe which capacities will be necessary, and which challenges unavoidable, when humans closely interact with robots or AV.

About the speaker

Bertram F. Malle was trained in psychology, philosophy, and linguistics at the University of Graz, Austria, and received his Ph.D. in Psychology from Stanford University in 1995. He received the Society of Experimental Social Psychology Outstanding Dissertation award in 1995, a National Science Foundation (NSF) CAREER award in 1997, and he is past president of the Society of Philosophy and Psychology. He is currently Co-Director of the Humanity-Centered Robotics Initiative at Brown University. Malle's research, funded by the NSF, Army, Templeton Foundation, Office of Naval Research, and DARPA, focuses on social cognition (intentionality, mental state inferences, behavior explanations), moral psychology (cognitive and social blame, guilt, norms), and human-robot interaction (moral competence in robots, socially assistive robotics). He has published five books and more than 100 other research publications.

POSTER SESSION

Title	**Poster Session**
Time and location	Thursday, February 15, 15.30-16.30, Foyer to C2, Level -1

Abstract

Invited posters on research projects will be on display for the entire duration of the conference. During the poster session, the authors will accompany their posters, presenting their work and answering questions to passing participants.

About the speakers

Presenting simultaneously in this session will be:

Budi Hartanto
Instrumental Aspects of Social Robots: A Philosophy of Technology Perspective

Paulis Astromkis
Regulation Model of Electronic Persons

Rebekka Soma and Vegard Søyseth
Robot Deployment and Task Redistributions – understanding the change of labor in the robotic age

Peter Rantaša
The Solvation of the Robot or The Voice of the Echo

Zhou Song
Artwork Installation

BUDI HARTANTO

Name	Budi Hartanto
Affiliation	The Society for Philosophy and Technology
Title	**Instrumental Aspects of Social Robot**
Session	Poster Session
Time and location	Thursday, February 15, 15.30-16.30, Foyer to C2, Level -1

Abstract

Robotics has transformed the way technology plays its role in society. Technology works autonomously to help complete human jobs. Its autonomous functions have now been developed for social robots. Even mostly they are not humanoid, they are designed to perform actions that resemble human intelligence. This poster explicates instrumental aspects of social robots. There are three instrumental aspects that can describe the existence of social robots. First, instrumentality of language. I refer to John Searle's Chinese Room Argument to explain instrumental aspect of language in social robots. Second, instrumentality of skill. Hubert Dreyfus' phenomenology of skill acquisition will be used to understand the nature of robotic skills. Third, instrumentality of AI technology. I elaborate phenomena of AI that is widely used in industrial, government, and academic world. I focus on AI for online transportation applications in Indonesia.

About the speaker

Budi Hartanto was born in Jakarta, 23 January 1978. He studied social philosophy at STF Driyarkara, Jakarta (2001-2004). Besides working as piano tuner and technician, he is independent scholar, member of The Society for Philosophy and Technology, who has research interest in philosophy of science and technology. Instructor for philosophy of technology short course at Studia Humanika, Masjid Salman, Bandung Institute of Technology. Here are some of his published works translated from Indonesian language: "Robotic Rationality", Koran Tempo Sunday Edition (23/2/2005). "Welcome to the Age of Robots", www.lsfcogito.com [1] (17/4/2017). "Responsible Innovation in Indonesian Context", SAINS.KOMPAS.COM (3/2/2017). "Reading Materiality of Science Based on Don Ihde's Philosophy of Technology", DISKURSUS, Journal of Philosophy and Theology, Vol 13 No 2 October 2014. "Posthuman World: Exploring Contemporary Themes in Philosophy of Technology". Book Published by Penerbit Kepik, Depok (2013).

PAULIS ASTROMSKIS

Name	Paulis Astromkis
Affiliation	Vytautas Magnus University (Lithuania), Faculty of Law, Vice dean for digitization
Title	**Regulation Model of Electronic Persons**
Session	Poster Session
Time and location	Thursday, February 15, 15.30-16.30, Foyer to C2, Level -1
Abstract	This poster will present the key points of interdisciplinary research of law and ethics in the field of sophisticated autonomous robots as a responsible electronic persons. This research is intended to serve as a basis for the future guidelines and a model of legal regulation that would encourage the development of technologies without violating thefundamental values of society. The research contributes to knowledge, wisdom and understanding of regulation issues in the context of technological evolution.

REBEKKA SOMA AND VEGARD SØYSETH

Name

Rebekka Soma, PhD-candidate[1]
Vegard D. Søyseth (M.Sc), Principal Engineer[2]

Affiliation

[1] Department of informatics, University of Oslo, Norway
[2] Robotics and Intelligent Systems, Department of Informatics, University of Oslo

Title

Robot Deployment and Task Redistributions – understanding the change of labor in the robotic age

Session

Poster Session

Time and location

Thursday, February 15, 15.30-16.30, Foyer to C2, Level -1

Abstract

While the aim of introducing robots into workplaces might be to reduce manual labor—which in turn increase productivity while simultaneously reducing cost—robots do not create a void in human practices where the work once took place. Rather, the deployment of robots creates a redistribution of work

About the speakers

Rebekka Soma's research interests are right now focused on the relationship between humans and robots—the meeting and interaction between the two. She am also deeply interested in theories of phenomenology, and how they can be applied as a way of understanding how humans (and perhaps robots?) meet and interact with the objects and subjects that make up our surrounding environment.

Vegard Søyseth's field of work is within prototyping of robotic systems. Moreover, I am also interested in the in the interaction between humans and robots. My research is focused on humans sharing space with autonomously navigating robots. The goal of my research is to find design implications within the field of HRI and more specifically; in human-aware technologies and the form of the technology.

PETER RANTASA

Name	Peter Rantaša, Ing. Mag.
Affiliation	Department of Philosophy, University of Vienna, Austria
Title	**The Solvation of the Robot or the Voice of Echo**
Session	Poster Session
Time and location	Thursday, February 15, 15.30-16.30, Foyer to C2, Level -1
About the speaker	Peter Rantaša is Doctoral Student at the University of Vienna and member of the research group of the Chair Philosophy of Technology and Media led by Mark Coeckelbergh. He currently works on his PhD thesis on Voice in Humans and Talking Machines. He is also Coordinator at the Cognitive Science Research Platform based at the University of Vienna and has a professional international background in arts, cultural management, creative industries and advocacy thereof. He studied Cognitive Science and is a practical trainied engineer ("Ingenieur", state certified engineer in "Nachrichtentechnik, Elektronik und biomedizinische Technik").

ZHOU SONG

Name	Zhou Song
Affiliation	Independent Artist, Beijing, China
Title	**Artwork Installation**
Session	Poster Session
Time and location	Thursday, February 15, 15.30-16.30, Foyer to C2, Level -1

Abstract

The notion of machine empathy is of particular interest to artist Zhou Song: can robots have consciousness? In what ways will AI transcend from its identifier as "artificial," toward simply "intelligent" entities—if at all? Will they always be "artificial?" And are they really intelligent or mere agents of their programmers, coders, and in a sense their creators? As an artist exploring these ideas through traditional art methods, including painting and sculpture, Zhou seeks to understand the complexities of human and machine interaction through the contemplative practice of making art. In other words, he doesn't make robots, but explores answers to these contemporary anxieties through visual language, creating narratives that explore the perceived and actual closeness between machines and humans. AI has and will gradually replace human related functions, effecting human development in several stages. This gradual influence will permeate humans on a social, psychological and cultural level. "This essential change is different from any of the changes humans have experienced before, dissimilar from the evolution of primitive society to the agricultural society, and later to the Industrial Age," says Zhou.

About the speaker

Beijing-based artist Zhou Song (b. 1982, Jiangxi) graduated from Tianjin Academy of Fine Arts. He first gained recognition beginning in 2003 with his series of hyper-realistic large-scale oil paintings. He is the recipient of the Tianjin Academy of Fine Arts graduate thesis first place award, and the bronze medal for oil painting at the Nomination Exhibition of National Fine Arts Academy Graduates (2006). In 2009 he signed with the Today Art Museum where he mounted a solo exhibition. In 2012 he received the Award for Painting at the 5th Annual May Fourth International Youth Art Festival. His work is included several international private and institutional collections including Today Art Museum, Hanwei International Art Center and Tianjin Academy of Fine Arts.

RESTAURANT GUIDE

Most restaurants in Vienna are open from 11:30-24:00. However, hot meals are not always served after 22:00. Tipping is very common. We recommend the following restaurants and cafés in the surroundings of the campus, using the following categories: L= Lower priced, M= Medium priced U= Upper priced. If you need more tips, don't hesitate to contact Caroline Krecké or other members of the conference staff.

Restaurants, Cafés

Bodega 1080 [M-U]
Spanish tapas bar
Skodagasse 28, 1080 Vienna
www.bodega1080.at
Opening hours: Mon-Sat from 5pm

Café Francais [M]
Café and restaurant with a French touch
Währingerstraße 6-8, 1090 Vienna
www.cafefrancais.at
Opening hours: Closed on Sundays

Edison [M]
Café, bar and restaurant serving cocktails, salads, pasta, burgers, and snacks
Alserstraße 9, 1090 Vienna
www.edison.at

Fromme Helene [M]
Traditional Viennese dishes
Josefstätterstraße 15, 1080 Vienna
www.frommehelene.at

Das Kolin [U]
Seasonal specials and a well varied menu
Kolingasse 5, 1090 Vienna
www.daskolin.at
Opening hours: Closed on Sundays

Kommod [U]
Selected high quality dishes served in a comfortable atmosphere
Strozzigasse 40 1080
kommod-essen.at
Opening hours: Tue-Sat from 5pm

Café Merkur [L]
Students' favorite: Serving dishes from all over the world for convenient prices
Florianigasse 18, 1080 Vienna
www.cafemerkur.at

Il Sestante [M]
Supposedly the best pizza in town, located at the charming Maria Treu Platz
Piaristengasse 50, 1080 Vienna
www.sestante.at

Stiegl Ambulanz [M]
Traditional and modern food varieties, from Wiener Schnitzel to Mediterranean fish or pasta
Alserstraße 4, 1090 Vienna, Campus – Hof 1
www.stiegl-ambulanz.com

Sly & Arny [L]
Restaurant and cocktail bar, serving dishes from small salads to burgers, pizza, and rice bowls
Lackierergasse 5, 1090 Vienna
www.foodbar.at
Opening hours: Mon-Sun from 6pm

Via Toledo [M]
Italian specialties only a few steps from the campus
Laudongasse 13, 1080 Vienna
www.viatoledo.at

Weltcafé [L-M]
Students' favorite: Fairtrade and organic meals from all over the world
Schwarzspanierstraße 15, 1090 Vienna
www.weltcafe.at

Zum Roten Bären [M]
Austrian and Eastern European specialties rediscovered and innovated
Berggasse 39, 1090 Vienna
www.zumrotenbaeren.at
Opening hours: Mon-Sun from 6pm
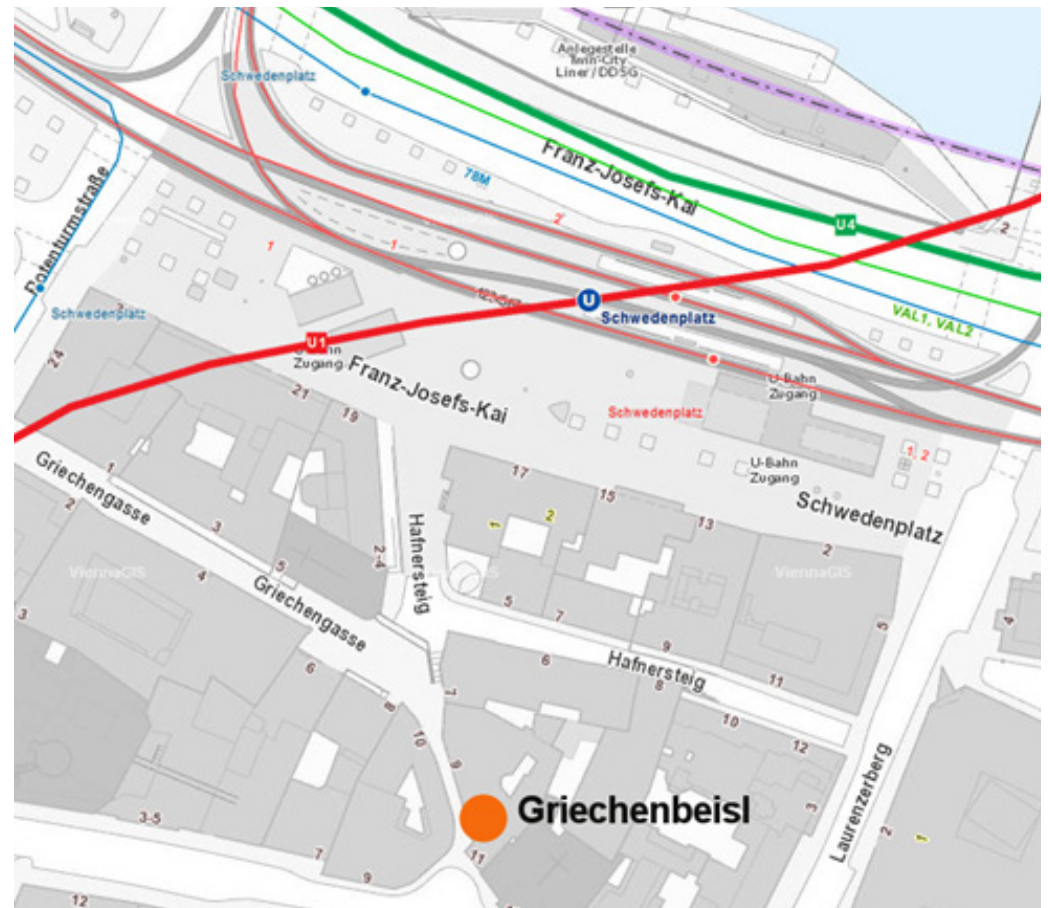
MAP FOR CONFERENCE ORIENTATION
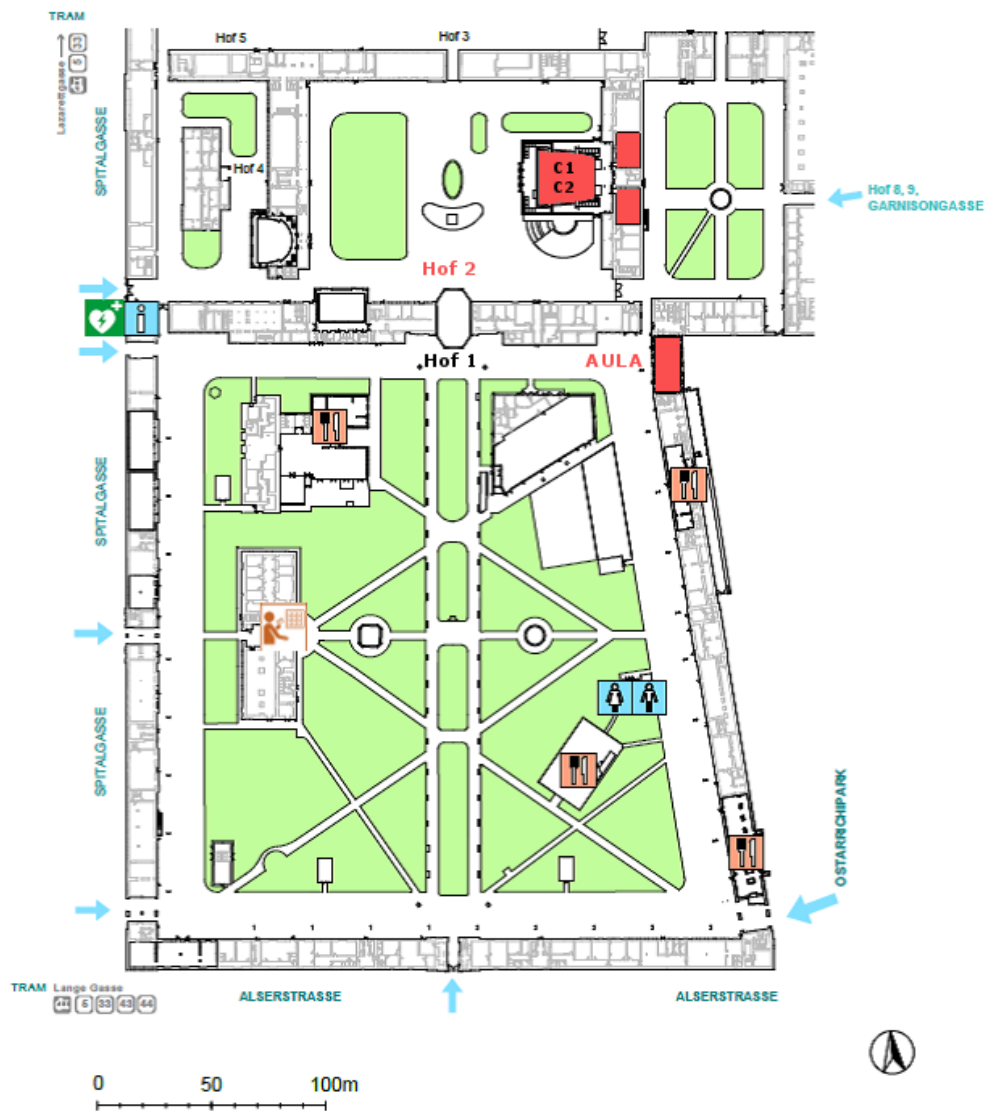
CONFERENCE DINNER

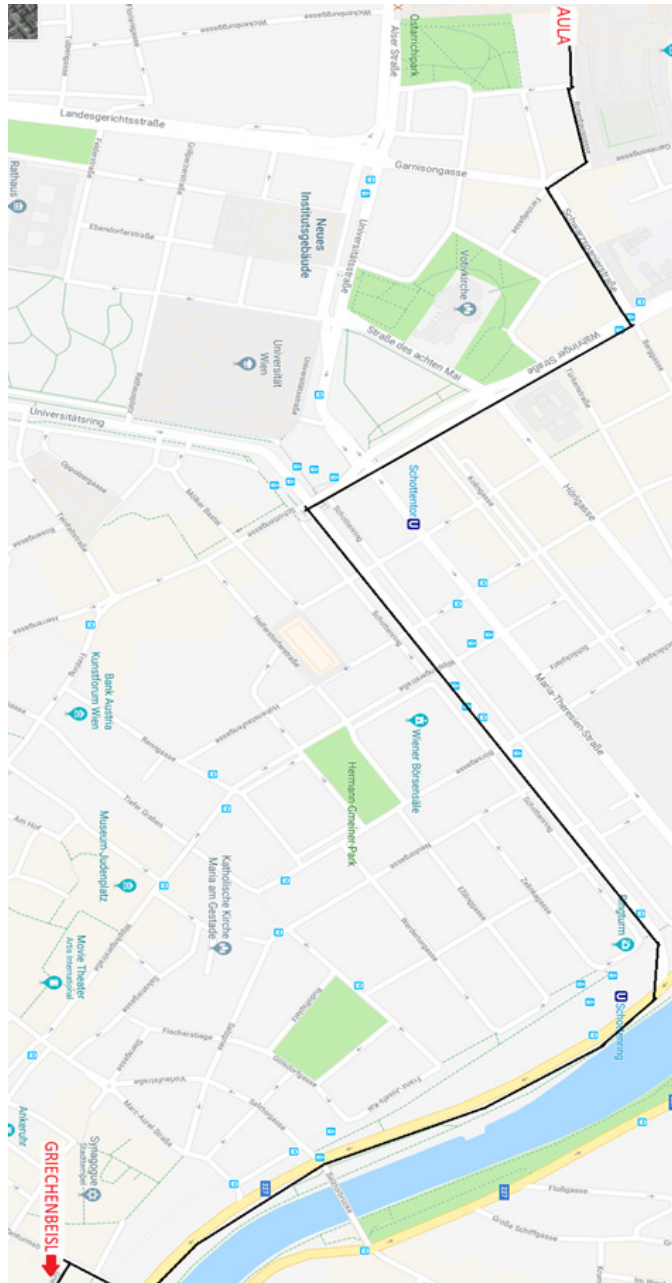The conference dinner will take place at **Griechenbeisl**, located at:

Griechengasse 9, Fleischmarkt 11
Tel.: +43 (0)5331977

Getting to the restaurant
Underground: Take Lines U1 or U2 to Schwedenplatz
Tramway: Lines 1 or 2 to Schwedenplatz

1. Upon reaching Währinger Str., turn right.

2. Continue until reaching Schottenring, then turn left on it.

3. Continue until reaching Franz-Josefs-Kai (and the river), then turn right.

4. Continue until reaching Rotenturmstraße/ Marienbrücke, and turn right.

5. Continue down Rotenturmstraße until Griechengasse, then turn left on it.

PRACTICAL INFORMATION

Accessibility

Do not hesitate to contact our staff in case you have special needs. Information on accessibility of hotels, sights, theatres and operas, restaurants, etc. is provided by Vienna Convention Bureau at www.wien.info/en/travel-info/accessible-vienna.

Banks and currency Exchange

In Austria the euro is used.

General opening hours:
- Monday-Friday: 8am - 12.30 noon and 1.30pm to 3pm (Thursday until 5.30pm)
- Closed Saturdays and Sundays

Currency exchange
Exchanging money is cheapest at the diverse banks, spread all over Vienna.

Credit card/cash points
Cash dispensers where you can withdraw cash with Maestro and credit cards are spread all over Vienna. One is located inside the Campus, Hof 1. On the map of the conference venue that will be provided in due time, the closest cash points are marked.

Car parking

Note that several districts of Vienna are short-stay parking zones, which means you need to purchase parking tickets. Mostly, information is displayed directly at the parking spaces. Further information (also about where to buy tickets) can be accessed at https://www.wien.info/en/travel-info/to-and-around/parking. A cheaper option is to park your car at one Vienna's conveniently located park and ride facilities (www.parkandride.at).

Conference and registration desk

The conference desk is located in Hof 2 (see orientation plan) at the foyer to C1 and C2 at the Campus, Spitalgasse 2, 1090 Vienna.

Registration desk opening hours:
Feb 14: 11:30-16:30
Feb 15: 8:30-13:30
Feb. 16: 8:30-13:30

Dining out in Vienna

Most restaurants in Vienna are open from 11:30-24:00. However, hot meals are not always served after 22:00. Tipping is very common. Usually, if service was satisfying, a tip is given. Find out more about selected restaurants in the restaurant guide of this booklet.

Emergency phone numbers
- **Ambulance 144** (European emergency 112)
- **Police 133**
- **Fire 144**
- **ViennaMed doctor's hotline for visitors** (0-24) +43 1 513 95 95 (service hotline, NO emergency service; in case of emergency please call 144)
- Doctor on call (nights between 7pm and 7am, weekends between Friday 7pm until Monday

7am) 141
- Pharmacy, outside normal hours +43 1 1550 (German tape only) or apotheker.or.at
- Dentist (Monday - Friday between 8pm and 1am, weekends 9am to 6pm) +43 1 512 20 78 (German tape only)
- In case of intoxication: +43 1 406 43 43
- Emergency rooms that are open all day:
    - Allgemeines Krankenhaus (phone: +43 1 404 00; Währinger Gürtel 18-20, 1090 Vienna)
    - Hanusch-Krankenhaus (phone: +43 1 910 21-0; Heinrich-Collin-Straße 30, 1140 Wien)
    - Lorenz Böhler Unfallkrankenhaus (phone: +43 1 331 10; Donaueschingenstraße 13, 1200 Vienna)
    - Unfallkrankenhaus Meidling (phone: +43 1 601 50-0; Kundratstraße 37, 1120 Vienna)

Insurance and liability

Participants are advised to take out their own health and travel insurance.

Postal service

The post office located closest to the campus is: Alserstraße 31, 1080 Vienna.

Opening hours:
- Monday – Friday: 8am - 6pm
- Saturday and Sunday: closed

Shopping

Shops and food stores in Vienna display a wide variety of opening hours (usually ranging from 7am to 8pm, some are open until 10pm). Please note that shops and food stores are closed on Sundays and typically close at 6pm on Saturdays. Bakeries often sell their products on Sunday mornings also.

There's several food stores that sell a limited range of their products on Sundays, most notably:

- Billa at Franz-Josefs-Bahnhof, Julius Tandler Platz 3, 1090 Vienna (6am - 10pm)
- Billa at Praterstern, 1020 Vienna (6am - 10pm)
- U3 Supermarkt at Westbahnhof, 1070 Vienna (7am - midnight)
- Bahnhof City at Wien Hauptbahnhof, Am Hauptbahnhof 1, 1100 Vienna (5am - 11pm)
- Spar at Allgemeines Krankenhaus, Währinger Gürtel 18-20, 1090 Vienna (9am - 7pm)
- Spar at Babenbergerstraße, 1010 Vienna (10am - 7pm)

(Be aware of the potential waiting period; usually those supermarkets see large crowds on Sundays.)

Smoking

Until May 2018 smoking indoors of restaurant or bars is still allowed under certain circumstances. The smoking areas are visibly separated from non-smoking areas. Depending on the size of the restaurant or bar, there's also locations where smoking is allowed in all rooms.

Taxes

The current Value Added Tax (VAT) rate is 20 %. VAT is included in hotel and restaurant bills, entrance fees, etc. and cannot be refunded on these services.

Taxis

There is several taxi companies: Taxi +43 1 60 1 60, Taxi +43 1 40 100, and Taxi +43 1 31 300. You can find taxi stands all over the city.

Please refer to the information provided at "How to get around in Vienna" to find further information on public transport and bike options.

Telephone

The code for calling Austrian numbers from other countries is: +43

Time zone

Vienna is in the Central European time zone (CET = Greenwich Mean Time +1).

Visa Requirements

You do not need a visa if you are citizen of

- Any country of the European Union, Switzerland, Croatia, Israel, Japan, Australia, New Zealand
- Citizens of certain North and South American countries do not need a visa either.

Please contact have a look at this page if you are in doubt: www.bmeia.gv.at/en/travel-stay/entry-and-residence-in-austria/

Voltage

Typical voltage in Austrian households, hotels, etc. is 230 volts (alternating current). Plugs are European standard with two round pins.

WiFi

Vienna provides around 400 free WiFi hotspots. Find them at www.wien.gv.at/stadtplan (Click "Kommunikation und Wirtschaft" and then "WLAN-Standort" to find them).

Also, a temporary user ID and password to access the WiFi of the University of Vienna (via eduroam) will be provided with your conference material. There is no limit to its use then, you remain logged in until you manually quit or take it out of the range of eduroam.

COLOPHON

Main organizers
Mark Coeckelbergh, Janina Loh, and Michael Funk
Chair of Media and Technology, Department of Philosophy, University of Vienna

Co-organizers
Johanna Seibt, Research Unit for Robophilosophy at Aarhus University, and Marco Nørskov, Research Unit for Robophilosophy at Aarhus University and Hiroshi Ishiguro Laboratories

Scientific Organization
Mark Coeckelbergh, Johanna Seibt, Michael Funk, Janina Loh, Marco Nørskov
Supported by the Research Network for Transdisciplinary Studies in Social Robotics (TRANSOR)

Conference Schedule
Michael Funk

Conference Staff
Agnes Buchberger, Caroline Krecké, Karoline Paier and her team: Simon Popp, Jesse De Pagter, Maximilian Hohlweg, Eva-Maria Kehrer, Flora Löffelmann, Lena Starkl

Supported by Gitte Grønning Munk, AU

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Nikolai Lander, AU

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Conference Program Book Editorial Realization
Søren Schack Andersen, Ib Jensen, Agnes Buchberger, Caroline Krecké

Press Relations
Mark Coeckelbergh, Alexandra Frey, Corporate Communications University of Vienna

TRANSOR

An International Cross-Cultural Network for Transdisciplinary Research in Social Robotics

The Research Network for Transdisciplinary Studies in Social Robotics - TRANSOR - is an international initiative for research exchange and research collaboration. The network aims to integrate Humanities research into Human-Robot Interaction Studies (HRI) and to facilitate collaborations between researchers from robotics with researchers in anthropology, philosophy, linguistics, sociology, art, psychology, cognitive science, education science, communication and media science, law, and economy.

TRANSOR is motivated by the insight that social reality is the most complex area of reality we know, and the competent exploration of the transformative potential of social robots can only be undertaken with the methods and categories of all fields that pertain to human social interaction, including the Humanities. The network's research activities thus implement "Integrative Social Robotics," a new method paradigm of cultural engineering based on value-driven designs, by facilitating the interactions between empirical, experimental, conceptual and phenomenological research, with attention to cross-cultural variations.

TRANSOR seeks active collaborations with related initiatives, such as the IEEE "Global Initiative for Ethical Considerations in Digital and Automated Systems" and the "Foundation for Responsible Robotics."

Currently the network has over 120 members; membership is free and all researchers with interest in the area of social robotics are invited to join.

For further information see **www.transor.org**

www.robo-philosophy.org