Beyond Anthropomorphism: Rethinking human-machine relations in robotics and A.I. by Sydney Institute for Robotics and Intelligent Systems SIRIS (previously Centre for Robotics and Intelligent Systems), Faculty of Engineering, University of Sydney

**About Symposium:**

Sydney Institute for Robotics and Intelligent Systems (SIRIS), in collaboration with the Sociotechnical Futures Lab (STuF) in the Faculty of Arts and Social Sciences and Sydney Business School has organised a 2-day international and multidisciplinary symposium on Human-Machine relations in Robotics and Artificial Intelligence.

This symposium challenges the popular expectation that the perfect future robot will be indistinguishable from, or superior to humans, or that humans will be perfectible through technology. Drawing on the latest research in engineering, social sciences and humanities, this event will evaluate the current state-of-the art against these fantastic visions. AI, robotics and social robotics were founded on the metaphors of the thinker, the labourer and, most recently, the companion. This symposium will explore where these metaphors are productive, and where they are problematic. This event will provide a more grounded understanding of the likely futures for these exciting and terrifying technologies.

**Date of symposium: 11 – 12 June, 2019**

**Tuesday 11 June 2019**
Co-hosted by Sydney Ideas - Why should the perfect robot look and think just like a human?
Time: 6pm – 7:30pm
Venue: SSB Lecture Theatre 200 Social Sciences Building, the University of Sydney

**Wednesday 12 June 2019**
Time: 9am – 6pm
Venue: Lecture Theatre 1130 Abercrombie Business School Building, the University of Sydney
Info and registration (Free): https://www.mediaatsydney.org/2019/05/beyond-anthropomorphism-symposium/
Beyond Anthropomorphism: Rethinking human-machine relations in robotics and A.I.

Symposium Description:

Artificial intelligence and robotics were founded on metaphors that equated the human and the technological — the thinker and the labourer. These anthropomorphic conceptions, bound up in the language, sociotechnical relations, narratives, and experiences of human-computer and human-robot interaction, have a certain power over how these technologies are conceived, designed and even used. While illustrative, powerful and often useful, these metaphors can also be misleading, as they can hide crucial differences between humans and machines. Yet the boundaries between humans and machines are fluid and never clearly given.

As humans we depend on machines for who we are. We are the creators of machines and we often do so in our own image. We ascribe human agency to artificially 'intelligent' computer systems and replicate the human in our robotic creations. Conversely, we have come to accept machine-metaphors when thinking about ourselves and our cognition. The brain and mind are commonly talked about in computer terms, colloquially and by neuroscientists themselves - we are said to 'process information', have 'inputs and outputs', memory, we 'download' things to our 'hard disk'.

Neither relationship, creating machines in the human image or conceiving of humans in machine-like terms, is without problems, as they reduce and limit the field of thinking and conception in design and research.

This symposium will interrogate the relationships between humans, AIs and robots by trying to get beyond the dominant naturalising anthropomorphic metaphors and machine conceptions of human cognition, agency and action. We stress that AI and robots are different from other machines and communication technologies because they seem to have agency, rather than simply being tools that enhance human powers. In Ihde’s terms, they establish alterity or background relations rather than hermeneutic or embodiment relations. They supposedly operate with a certain autonomy and social presence. This is not entirely unprecedented, as the actor-network theorists argue that many non-human actors already perform as agents in sociotechnical networks. Nass and Reeves argue that people relate to many of their devices in the same way that they treat other people.

Therefore this symposium aims to:

• Challenge organismic language (such as sensing, thinking, acting) by being specific about the capacities of robotic systems to engage with their material, symbolic and social environments.
• Challenge mechanistic language (such as processing, storing information) in understanding human cognition, which in turn is the basis for the creation of artificial cognition, creating a self-referential loop.
• Open the space for discussing ethics for robotics that engages with transferences, equivalencies and differences between robot and human agency.
• Investigate the historical, institutional and sociopolitical contexts of development in robots and AI.
• Explore the phenomenology, politics and aesthetics of human-robot interactions beyond anthropomorphism, as well as its science.
• Critically examine human-robot relations in practices that resemble human-human relations such as conversation, social presence, dance and other forms of interaction.
• Employ ethnographic methods in understanding human-robot relations
• Reconsider human/machine relations in robotic design and engineering
ABSTRACT: Morality is a major challenge in AI/robotics moving towards a symbiotic society with advanced artificial systems. In this talk, I argue how the pain nervous system can induce empathy, morality, and ethics as a developmental process of consciousness based on the mirror neuron system (MNS) that promotes the emergence of a concept of self (and others), and discuss the possibility of designing moral agents. First, the limitation of the current progress of AI focusing on deep learning is pointed out from a viewpoint of the emergence of consciousness. Next, the outline of ideological backgrounds of issues of mind in a broad sense is shown. Then, cognitive developmental robotics (CDR) is introduced with two important concepts; physical embodiment and social interaction both of which help to shape conscious minds. Following the working hypothesis, existing studies of CDR are briefly introduced and missing issues are indicated. Finally, an issue how robots (artificial systems) could be moral and legal agents is shown.

BIO: Minoru Asada specialises in robotics, artificial intelligence and cognitive developmental robotics. He has been a Full Professor of Mechanical Engineering for Computer-Controlled Machinery with Osaka University since 1995 and was a Professor with the Department of Adaptive Machine Systems at the university from 1997 to 2018. He was recently appointed as a strategic adviser for the Symbiotic Intelligent System Research Center Open and Transdisciplinary Research Initiatives, Osaka University and is currently a principal investigator for a Japan Science and Technology Agency project called 'Legal beings: Electronic personhoods of artificial intelligence and robots in NAJMI society, based on a reconsideration of the concept of autonomy.'

ABSTRACT: Advances in robotics are often associated with anticipations of humanlike machines. Varieties of anthropomorphism in this context range from unintentional to deliberate, and may combine visceral and projective aspects. The phenomenon invites 'why' questions, which are addressed differently depending on whether the inquiry is articulated in contexts of cognitive science, engineering, or the humanities and social sciences. My main interest concerns what representations of robots reveal about us as human. Since the concept of anthropomorphism rests on the ‘as-if’ of apperceiving human attributes in nonhumans, its phenomenon invites also questions of why and how a line is drawn between intelligent artefacts and genuine persons. I underline the capacity to participate in dialogical action (to have a ‘voice’) as fundamental to the human form of life, and yet lacking in socially interactive artefacts.

BIO: Raya A. Jones, PhD, is a Reader at the School of Social Sciences, Cardiff University, UK, where she teaches psychology. Her latest research concerns social robotics in the context of social psychology. Earlier work involves comparisons of Jungian, dialogical, narrative and social constructionist perspectives on the self. Her latest authored book is Personhood and Social Robotics (Routledge, 2016). Earlier books include Jung, Psychology, Postmodernity (Routledge, 2007), The Child–School Interface (Cassell, 1995), and several edited and co-edited volumes.
Laurence Devillers
Bad nudge Bad robot: ethical issues

ABSTRACT: In a near future, socially assistive systems aim to address critical areas and gaps in care or education by automating supervision, coaching, motivation, and companionship aspects of one-to-one interactions with individuals from various large and growing populations, including the elderly and children. Talk during social interactions naturally involves the exchange of propositional content but also and perhaps more importantly the expression of interpersonal relationships, as well as displays of emotion, affect, interest, etc. In order to provide a companion-machine with the skills to create and maintain a long term social relationship through verbal and nonverbal language interaction. Such social interaction requires that the robot has the ability to represent and understand some complex human social behavior. Conversational agents or social robots using affective computing and adaptive training, bring a new dimension to interaction and could become a new mean of "nudging" individuals. Emotional manipulation can be defined as an exercise of influence, with the intention to seize control and power at the person's expense. They are currently neither regulated nor evaluated and very obscure. The aim of this talk is to present our project BAD NUDGE BAD ROBOT (https://protect-ou.mimecast.com/s/biq9CgZowLH90jwiTNd-8p?domain=datai.eu). We are a pluri-disciplinary team. Should affective systems interact using the norms appropriate for verbal and nonverbal communication consistent with the societal norms where they are located? Economics is studying rationality and to that aim many studies are documenting cognitive bias with a focus on how they affect decision-making. Experiments in the field are a very effective approach to do this. It can be applied to the topics of child development and education at young age. As vocal assistants have become ubiquitous, this project studies their impact when such objects are used as an interface: are nudges efficient when implemented by such a vocal assistant? Are they more effective than a human interviewer? Can the vocal assistants elicit issues better than a human interviewer? We setup a field experiment to address these questions.

BIO: Laurence Devillers is a full Professor of Computer Sciences and Artificial Intelligence at Sorbonne University/ CNRS (LIMSI lab., Orsay) on Affective Robotics, Spoken dialog, Machine learning, and Ethics. She heads the research team "Affective and social dimensions in Spoken interaction". Laurence Devillers received her HDR (habilitation dissertation) in Computer Science “Emotion in interaction: Perception, detection and generation”, in 2006. She is the author of more than 150 scientific publications (h-index: 35). In 2017, she wrote the book “Des Robots et des Hommes : mythes, fantasmes et réalité” (Plon, 2017) for explaining the urge of building Social and Affective Robotic Systems with Ethics by design. Since 2014, she is member of the French Commission on the Ethics of Research in Digital Sciences and Technologies (CERNA) of Allistene and participated to several reports on Research Ethics on Robotics (2014) and Research Ethics on Machine learning (2018). Since 2016, she is involved in “The IEEE Global Initiative for Ethical Considerations in the Design of Autonomous Systems” and leads the IEEE P7008 norm and standard working group on nudging. She is also involved in the DataIA institut (Orsay) and the French HUBIA.
Program

**DAY 1: Tuesday 11 June – Sydney Ideas**

Venue: SSB Lecture Theatre 200 Social Sciences Building, the University of Sydney

6pm: Opening by Ian Manchester, Associate Director, Sydney Institute for Robotics and Intelligent Systems (University of Sydney, Australia)

Chair: Naoko Abe & Chris Chesher

6.10pm: Minoru Asada (Osaka University, Japan)  
- How to design artificial moral agents towards symbiotic society

6.30pm: Raya Jones (Cardiff University, UK)  
- Anthropomorphism as a dialogue with ourselves

6.50pm: Discussion and Q&A

7.30pm: End of day 1

**DAY 2: Wednesday 12 June**

Venue: Lecture Theatre 1130 Abercrombie Business School Building

9am: Registration

SESSION 1 - Chair: Naoko Abe

9.30am: Laurence Devillers (Sorbonne University/CNRS, France)  
- Bad nudge Bad robot: ethical issues

10.20am: Coffee Break

SESSION 2 - Chair: Kai Riemer

10.40am: Mike Seymour (University of Sydney, Australia)  
- The Arms Race of Faces: AI, Agency and Identity

11am: Chris Chesher & Fiona Andreallo (University of Sydney, Australia)  
- Eye, vision and gaze in science fiction and social Robotics

11.20am: Katsumi Watanabe (Waseda University, Japan, University of New South Wales, Australia)  
- Agency, experience, and social interactions in cognitive scientific views

11.40pm: Mari Velonaki (University of New South Wales, Australia)  
- Re-examining anthropomorphism as a necessity to create an aesthetic framework for robots capable of social interaction and intervention

12.00pm: Q&A

12.15pm: Lunch

SESSION 3 - Chair: Justine Humphry

1.15pm: Naoko Abe (University of Sydney, Australia)  
- Generating anthropomorphic motion and sociological perspective

1.35pm: Simon Coghlan, Lucy Sparrow, Martin Gibbs, Jenny Waycott (University of Melbourne, Australia)  
- The human touch: Ethical dimensions of care robots made “in our image”

1.55pm: Yolande Strengers (Monash University, Australia) & Jenny Kennedy (RMIT University, Australia)  
- Turn me on, turn me off

2.15pm: Massimiliano Cappuccio (University of New South Wales, Australia)  
- Anthropomorphism in hybrid taskforces: social cognition and artificial autonomous agents

2.35pm Q&A

2.50pm Coffee Break

SESSION 4 - Chair: Jolynna Sinanan

3.10pm: Ed Santow (Australian Human Rights Commission, Australia)  
- Of AI, horses and jockeys: Re-negotiating our relationship with machines in the era of AI

3.30pm: Yuji Sone (Macquarie University, Australia)  
- Hiroshi Ishiguro’s android science: The fabulation of “upstream engagement” and entertainment

3.50pm: Jason Tuckwell (Western Sydney University, Australia)  
- Techné, agency and computation

4.10pm: Toby Walsh (University of New South Wales, Australia)  
- Artificial and Natural Minds

4.30pm Q&A

4.45pm Break

SESSION 4 - Chair: Chris Chesher

5pm: Panel discussion
With M. Asada, R. Jones and L. Devillers

6pm: End of symposium
Getting to the symposium:

Get to the University of Sydney
The closest train station to the conference is Central or Redfern Station. From Central Station you can catch buses 428, 426, 423 and M30 to City Road before Butlin Avenue. From Redfern Station you can walk for 15 mins to the symposium venues. For more information, please visit Transport NSW.

Get to the Venue Day 1 - 11 June 2019
SSB Lecture Theatre 200 Social Sciences Building
Address: Social Sciences Building (A02) SSB Lecture Theatre 200 Science Rd, Camperdown NSW 2006

Get to the Venue Day 2 - 12 June 2019
Lecture Theatre 1130 Abercrombie Business School Building
Address: Abercrombie Building (H70) Corner Abercrombie Street and Codrington Street, The University of Sydney NSW 2006

Registration:
The symposium is free, but advance registration is required.

Organising committee:

Naoko Abe, Research fellow in Human-Robot Interaction, Sydney Institute for Robotics and Intelligent Systems, University of Sydney

Fiona Andreallo, Lecturer in Digital Cultures, Department of Media and Communications, University of Sydney

Chris Chesher, Senior Lecturer in Digital Cultures, Department of Media and Communications, University of Sydney

Justine Humphry, Lecturer in Digital Cultures, Department of Media and Communications, University of Sydney

Kai Riemer, Professor of Information Technology and Organisation, Sydney Business School, University of Sydney

Mike Seymour, Associate Lecturer, PhD candidate, Sydney Business School, University of Sydney

Jolynna Sinanan, Research Fellow in Digital Media and Ethnography, Department of Media and Communications, University of Sydney

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