A Report on the 2018 4S Conference in Sydney, Australia

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What characterises STS in different regions? What kinds of research projects, educational programs, and people are doing STS around the world? What problems exist in different regions? Can we draw comparisons and remark on differences between regional practices unproblematically? And, inevitably, what is STS? These are some of the questions that recurred in this year's 4S conference. We may not have arrived at answers to these questions; in true STS style, the delegates opened up questions for inspection and interrogation, without requiring definitive solutions. This reflects our tendency as a field to stay problematic, cutting-edge, and elusive.

This year, 4S (the Society for Social Studies of Science) was held between 29[th]August 2018 and 1[st]September 2018. Most events took place at the International Convention Centre on Sydney's Darling Harbour, with certain other events taking place at the nearby Powerhouse Museum. Over four short days, hundreds of delegates discussed and explored the TRANSnational theme in special plenary events, making and doing sessions, short films, and closed and open panels. The official conference

events began on Wednesday and ended on Saturday. With over one thousand delegates and two hundred panels, it was a busy few days.

On the first day of the conference, hundreds of delegates filled the Cockle Bay theatre for the first formal part of the proceedings. The first plenary that evening was "STS Across Regions," in which a panel of five STS scholars from different parts of the world spoke candidly about how they found themselves in STS, and the character of STS where they live and work.

Immediately after this event was the Welcome to Country and Presidential Plenary. We were privileged to receive a Welcome to Country given by Uncle Allen Madden, an elder of the Gadigal people of the Eora nation. As we were reminded frequently throughout the conference, we were gathered on lands that were, are, and always will be Aboriginal land, of which sovereignty was never ceded to the European invaders who arrived on Australian shores in the eighteenth century. Aboriginal people have lived and performed knowledge practices on the land we now call Australia for 60,000 years, with an identity and ontology bound together with language. But as Uncle Allen pointed out, the language of the Gadigal people is now lost to future generations because native languages were forbidden by the European invaders.

This may seem a curious way to begin the 4S conference. The theme was TRANSnational STS, and after all, the Gadigal people and Sydneysiders live on the same land, in what we now call the state of New South Wales, on the continent of Australia. But when we come together at an international conference, different ways of doing STS meet and challenge one another, and hopefully find commonalities and differences through the engagement of open-minded, clever people from all over the world. But we must learn from history. When Europeans arrived on Gadigal land, two ways of encountering the land clashed with what would turn out to be disastrous consequences. In fact, we do not meet on the same land. Attendees of the conference came to Sydney from all four corners of the Earth, and surely each person's way of encountering that country is different. The task ahead was to greet each other in recognition that in encountering other ways of doing STS we would encounter difference. But that we must avoid the kinds of conflict of people and ideas that compromised Sydney after European invasion. This means avoiding the kind of essentialist thinking that emphasises and oversimplifies strangeness.

The presidential plenary was delivered by Kim Fortun of UCLA, outgoing president of 4S. Fortun posed the questions that had brought us all together: what is TRANSnational STS, why is it important, and how can we advance and steward it? Trans- is a prefix referring to something that goes

between and that is threatened by hierarchies. It has both strengths and vulnerabilities. STS institutions, as well as educational institutions generally, are being shut down all over the world. We need new methods and new ties. In Fortun's words, we need transcendental scholarly networks as opposed to strategic networks. Trans networks don't just try to get by, they push. We must do this internationally while remaining mindful of the issue of essentialism. She addressed the issue of difference and strangeness. As Fortun eloquently puts it, we require a "call and response" attitude that would permit translation of ideas across regions. Instead of finding ourselves in conflict, we should allow space for new ways of making and using knowledge. We should prepare as we would for a stranger, without knowing what they will bring. Look to the future while drawing on the past. That way we can build those networks that strengthen us at this crucial time.

We were lucky enough to hear the music of DJ Alex Lippman at the conclusion of the talk, which in Fortun's view encapsulated the spirit of TRANSnational STS. Lippman continued to perform as the delegates passed out of the room into the Welcome Reception, where drinks and nibbles were mercifully abundant.

Keynote speaker Helen Verran

This year's Dyason Lecture Speaker was Helen Verran, an Australian-born scholar of considerable renown whose work has taken her both overseas and to Aboriginal communities in Australia's Northern Territory. Verran was one of my favourite lecturers when I was an undergraduate at the University of Melbourne, and I had only heard her speak once since then. But I am sure that everybody there at the State Library would join me in remarking on Verran's insight and playful speaking style.

Verran's talk was centred around a single artefact: an image created by William Bradley, one of the first European explorers to arrive at Australia. Following Inga Clendinnen's naming of the piece as "Dancing with Strangers", she showed us the picture which depicted several European explorers and several local Aboriginal people dancing together. Verran's interpretation of the image was very relevant to the idea of Transnational STS. In Australia, the presence of Aboriginal knowledge practices and ontologies prior to invasion is often glossed over. The strangers, upon meeting, immediately encountered dramatically different ways of seeing and participating in the world. Verran particularly commented on the practice of dancing as something that brings difference into focus. Dancing provides different functions in the two societies, and consequently is very different in style. Pointing to the images, Verran imagined that the figures

were in conflict as well as play, trying to involve each other in the different kinds of dancing common in both cultures. This symbolises the good will that once existed on both sides of what is now a divided nation, before the slaughter of Aboriginal people and the subduction of their ways of learning about and being in the world.

Knowledge practices are enacted, and in their enactment they answer questions: how knowers are configured, what it is that knowers know (ontology), how they know (methods), and how knowers know that they know (epistemology) (and she puts it). This is quite elegant phrasing that breaks the concept of "different knowledge practices" into simple and universal terms. As Verran puts it, strangers and strangers can find connections even if they have different ontologies.

Human non Human and the Visual Matrix

Associated with the conference was the Human non Human exhibition at the Museum of Applied Arts and Sciences (MAAS) Powerhouse Museum. The exhibition incorporated work intended to respond "to the impact of accelerating technology, connectivity and a rapidly changing environment." The responses were diverse, commenting on food, work, sex, and belief and combining artistic expression with scientific insight.

After looking at the exhibition I, along with 20 to 30 others, participated in the Visual Matrix Workshop, a project run by Lynn Froggett and her associates. The event was part experiment and part shared experience. We sat in a snowflake pattern arranged by the researchers so as to make eye contact with other participants difficult, and were asked to call out images, thoughts, and feelings prompted by the stimulus material of the exhibition. In no particular order we called out our responses to the exhibits in what became a communal chain-of-thought experience. The responses were recorded without any way of identifying one voice from another, and in the words of the researchers the results would be used to form a "collage".

Different clusters of thought emerged during the experiment, which we discussed afterwards after a short break. With no prompting other than the words of the other participants, we focussed on themes such as the environment (and, since many Australians were participating, particularly on humans' destructive influence on the ocean and Reef). Another prominent theme was other planets and aliens, and other science fiction references. It was a fascinating and engrossing experience.

The Visual Matrix was part of the Making and Doing session — a very

interesting part of the conference. Researchers from different regions presented their research – some showing posters and films, and others inviting attendees to take part in the experience. There were far too many presenters to describe here, but my impression was of people using STS thought to create interventions and comment on the impact of science. There was also a short film festival associated with the session.

Robots, Bots, Software and Artificial Intelligence

On Thursday there was a fascinating series of panels surrounding robots, bots, software and artificial intelligence, and particularly their presence in and impact on contemporary society, culture, politics, and economics. The themes included trust, vulnerability, ethics, and accountability. This is just one of several panel sequences on the day; I am only reporting on papers that I saw first-hand.

Luan-Hung Lo (Virginia Tech) gave a talk on the "Scientific Colonization of Images of Social Robots in Taiwan." His presentation concerned Pepper, a social robot with the ability to read and express emotions. As he describes it, Taiwan is a relative latecomer in international relationships, which makes it more susceptible to influence from Japan and the USA. Lo talked about the media presence of Pepper and other robots, and the identifiable concerns of the general public. Specifically, what labour will be automated and replaced with machines? There is a perception that it is unskilled labour that will be replaced first. But as Pepper shows, white collar jobs will also be replaced by thinking, feeling machines. Lo also talked about the dominant metaphors surrounding robots in Taiwan, particularly the master-slave dynamic and gender. He left us with the question of what the roboticist's role is in designing robots, and how much is determined by other things.

Heewon Kim (Korea Advanced Institute of Science and Technology) next gave a talk entitled "Making of 'AI' World Cup: Attuning to the Ideal Human-Machine Configuration." Kim's talk concerned the fascinating practice of virtual soccer and the competition of software designers to create the best virtual team. Kim showed a video of red and blue figures bouncing around a screen in pursuit of a two-dimensional ball, looking for all the world like a view of a soccer match from above. Each team's behaviour is determined by AI programmers who compete with one another to win. After the code is sent to a server, no humans can intervene in the process, which as Kim points out turns them into passive participants. The video also revealed human commentators on the event, as well as crowds of cheering fans. The robots on the screen are sometimes anthropomorphised, for instance saying that a robot is "lazy"

or "losing focus". As well as being a popular event, the practice is taken seriously by academics who gain acclaim by creating winning software. There has been friction between the different programmers, operating systems, and the software used on the server.

Shoji Nagataki's (Chukyo University) paper "Vulnerability, Risk and Humanity", discussed the philosophical basis of their research in their program in Japan. Particular themes were of human vulnerability and the risks we take in trying to deal with them. As Nagataki puts it, older types of risk like hunger have been replaced by new risks in the modern world. And robotics is used to help us deal with human vulnerabilities, and especially things that humans are fundamentally bad at. But these scientific and technological advancements have themselves created new vulnerabilities. Nagataki's presentation engaged with the philosophical frames they are using in their research and presented an interesting model for predicting how robots will become moral agents (that is, agents that are seen as capable of moral decisions). First they must engender our sympathy or empathy, which will cause them to become moral subjects (subjects who are worthy of our moral consideration and protection). From there, machines will become moral agents.

Céline Borelle's (Orange Labs) presentation, "Towards a Sociology of Ontological Reflexivity", addressed how sociology can study interactions between humans and machines. Borelle particularly spoke of social intelligence, that is, conversational and affective computing, and the place where relationships are formed. The importance of paying attention to the ontological reflexivity of actors was emphasised (and reference was made to Bruno Latour and Steve Woolgar's work). The operations of ontological determination are connected to how we find ways of living alongside machines. Borelle proposes that experimental interaction with social machines should follow how actors qualify they ways that they investigate the social.

Morgan G. Ames (CSTMS, UC Berkeley) presented a paper entitled "Of Hackers and Yearners: Constructionist Learning's Debt to AI and Cybernetics." The topic was Seymour Papert, an AI pioneer who later became very interested in education and learning in children. Papert remains a proponent of ideas that have contributed greatly to constructionist learning theory. Papert's belief is that schools do not teach children in the right way. He distrusts them as unintuitive and factory-like. Children need to be playful and construct their own knowledge and relate concepts to each other on their own. In constructing their knowledge, children will encounter problems and correct them, a process Papert has called "debugging". Papert's contribution to further this aim is a series of educational tools, from Logo Writer to Lego Mindstorms. By Ames disagrees to some extent, arguing that social learning is also important for

children. Papert's approach is reminiscent of the "hacker ethic" that surrounded MIT during the hey-day of AI when he did his ground-breaking work with Marvin Minsky. Ames's paper is both a summary and critique of Papert's work.

A paper entitled "To Bot or Not to Bot" was co-written by Sachit Rao, Bidisha Chaudhuri and Janaki Srinivasan (all of [International Institute of Information Technology Bangalore](#)). This paper is based on research carried out at an academic admissions desk in India to study the actions of about 1000 people, and the kinds of questions that they asked. There were often queries that could be found on the associated website, and others that were very specific to the person. For example, negotiations. For example, "I am sick, can the deadline be extended?" Issues identified were that the same query could be posed in different ways, and that decision-making is required to know where to transfer the query. An additional complication is that it is sometimes unclear when the questioner is a parent or a student, since in India parents often represent students in such matters. The paper commented on what humans expect of bots: to be smart, seamless, personable, and flexible. This clearly delineates a difference between what humans are supposed to do and what bots are supposed to do. They also investigated the question of *telos*, that is, what does the agent want to do? In a bot, that question is usually readily answered. But a human might have a different *telos*, for example, to find another job.

[Elisa Oreglia](#)'s (King's College London) paper was entitled "Human Trust and the Machine: Transnational Online Business in China". Oreglia's paper used the example of WeChat to discuss the issue of trust in online spaces. WeChat is a very prominent social network used in China, but it is, in Oreglia's words, a thing that you live on. Messaging is done, as is the formation of large closed groups. There are also minishops that allow users to purchase goods through WeChat. But there is an issue of trust on WeChat, because the quality of the goods purchased is not necessarily assured. China has experienced significant food safety issues, and there is less use of brands and more participation by small retailers. There are also problems with infrastructure. The payment is peer-to-peer, and the question is always "should I take a chance on you?". Oreglia described an incident in which Chinese ex-pats living in France took photos of themselves drinking wine in order to improve the trust of potential consumers, that is, the trust that the wine really was from France and of good quality. In fact, the wine is imported through regular business channels. But by sharing "moments", consumers can form what seem like close individual-to-individual channels of communication.

Dian Zeng's (Institute of Science, Technology and Society, Tsinghua University) paper "Shadow of Gender: Lena in the Eyes of her Users in

China" discussed a commonly used test image in the field of digital image processing. The image is of Lena Soderberg, a Swedish supermodel born in 1951. The test image is a photograph of her face from *Playboy* magazine in 1972. The image was chosen almost at random by early digital image processors and has been used ever since. She has been called the "first lady of the internet". It is still used partly because it provides consistency in the assessment of digital image processors. The paper reported on semi-structured interviews conducted in China. The research team was assessing the opinions of computer science students, both undergraduate and graduate, on whether the image is offensive or sexist. Interestingly, opinions were significantly different when the interviewer was male or female. The results of the experiment showed that most interviewees believed that it is simply a useful image for technical reasons, although they use gendered terms like "the beautiful lady". In contrast, when female interviewers conducted the interviews the responses were much more gendered, defending the right of men to use women's images. Zeng concludes that Lena has a social gender, and that vision itself is subject to social gendering.

Conclusion

I left the conference feeling excited and rejuvenated. At a big international conference, it's not just the panels relevant to one's own research that spark the imagination. Connections can be made with people working with very different scientific or technological objects, who nevertheless encounter the same kinds of problems and revelations. This is probably not unique to STS, but because STS is (perhaps deliberately) poorly defined, it attracts an eclectic range of research characterised by varying methodologies, ontologies, and epistemologies, but nevertheless with an STS flavour. STS is a field that adds multiplicity to what we see and hear. That is perhaps the "trans" nature of STS; that of being transdisciplinary, transgression, and transactional. We were challenged to encounter STS in different parts of the world, but also STS is different kinds of contexts, with the attitude of strangers meeting for the first time.

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