



The Science Inside

The
Alan Turing
Institute



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CAISS

Computation & AI for Social Science Hub

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Conference Report

IC2S2 – The 9th International Conference on Computational Social Science was held in Copenhagen in July and saw 728 delegates from across the world enjoy a day of tutorials and then a further three packed days of key notes and shorter talks. This was complimented by a huge range of posters which were exhibited each day.

Keynote – Jevin West, University of Washington (US) Information Science:

Jevin kicked off the conference with two questions asking: “Can we muster enough elective energy to take action for ourselves in politics, health etc”. and “how do we solve a problem like misinformation?” His answer to both was: basically “you don’t, but you can do things better”.

One myth he wanted to debunk: anti vaccine equals anti-science. This is not true, people who are anti vaxers look to science to inform their views too. The public like to think that they can do their own research, but they often depend on the “credentials of experts”, whether they are scientists or lay experts. He then asked “do journals still matter as credential makers?” The conclusion was that “yes they do”, however, highly regarded professionals are less likely to publish in journals as they do not see the need to be “published” as their research is readily available and “out there”.

Perceived expertise: what are the prevalence and relative influence of perceived/lay experts who spread Covid-19 vaccine misinformation? Data & methods - 4.3m tweets and 5.5 m users that included vaccine discussion during April 2021 were examined and manually labelled. It was found that anti-vaccine supporters shared lots of perceived experts knowledge, tweets, likes etc. Perceived experts were more influential in the community than real experts e.g. health professionals. Perceived experts had a sizeable presence in the anti-vaccine community and are seen as important.

Perceived expertise to perceived consensus around Covid-19: Papers were being discussed in both communities – science based and anti-mask wearing. How papers were referenced had an effect, they could be split into epidemiology and physical experiments in the science community. In the online community it was separated by mask and non-mask wearing. The conclusion was that perceived expertise leads to a perceived consensus.

Much laughter was heard when he explained Brandolinis Law, from Wikipedia the definition is: “Easy to create BS, hard to clean it up!” When asked ChatGPT produced a definition of Brandolinis law that was complete BS; the irony of it!

For the Future: Jevin stated that we need to find out how to measure the prevalence of and exposure to misinformation. We need to teach science from an early age with social science, future generations will then understand the bridge between science and social science; and we need to save the planet from social media so we do not destroy ourselves! (*Anecdote on the next page . Ed*)

Take away main message - “We need critical thinking skills more than ever”.

Please note that conference reports reflect the opinions and views of the presenters

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IC2S2 continued...

IC2S2 anecdote: **Jevin West** said he knew the human race was doomed after he saw this take place: A woman was on a beach helping newly hatched turtles to get to the sea. She was cradling a turtle when her friend took a picture of her with the turtle using her phone. Once the picture was taken the turtle was unceremoniously dumped as all that mattered was how the picture looked and getting it uploaded to her Instagram profile! Turtle abandoned in favour of her social media profile.

Keynote – Joanna Bryson, Professor of Ethics and Technology, Hertie School in Berlin:

Bryson had a lot to tell us and her talk was fast and furious, she started by stating AI trained on human language replicates implicit bias and reality. The internet reflects our lived experience and biases, so how can we implement auditable procedures to take responsibility and practice transparency? We should take responsibility for our products firstly identifying AI as a product - not an alien entity in order to test them for completeness. All details should be documented in design plans and every step should be transparent for every “product”.

Trust, cooperation and information flow, and from this we have adaptive false beliefs which with AI, power and governance all play a part in every thing we do. Bryson talked about the Agent Based Model (ABM) of Altruism: why should we share knowledge? Altruism is also completely natural; but you can cooperate competitively, this is Hamilton's Rule [1] – although from 1964, it is still valid today, and “predicts that social behaviour evolves under specific combinations of relatedness, benefit and cost”. Humans are smart as culture enables us to share information, however, even solitary tortoises use culture as they can learn what it has to do to get food by watching another tortoise. Bacteria also share information and this has contributed to antibiotic resistance. Natural variation often indicates fairness trade offs, but we need to ask are we really being both fair and smart especially with AI?

According to Bryson no one has found a correlation between social media and inequality and asked why and when does inequality cause polarisation? In-group cooperation has a lower risk, but out-group diversity has a higher expected outcome; so when an economy offers poor support, avoiding risk can be more important than maximising gains. Bryson feels it is not the use of social media that is contributing to inequality, but did not tell us her theories on what is!

Bryson touched on ethics. Does the EU have a right to regulate AI? Companies are using data that comes from all over the world. Countries have signed up to the Universal Declaration of Human Rights so everyone has an obligation to proactively defend the human rights of every human within its borders so do we need more legislation?

Takeaways:

- Cooperation is entirely natural, produces public good and increased “carrying” capacity
- Competition is also natural, especially if some risk great loss
- Inequality and particularly precarity create context where competitive, polarized behaviour is adaptive
- Governance is a means to ensure peer status
- Redistribution can defeat precarity and facilitate innovation and cooperation.

[1] Das, N. (2021). Hamilton’s Rule and Genetic Relatedness. In: Shackelford, T.K., Weekes-Shackelford, V.A. (eds) Encyclopedia of Evolutionary Psychological Science. Springer, Cham. https://doi.org/10.1007/978-3-319-19650-3_3749

Link to full conference information: <https://www.ic2s2.org/index.html>

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Behavioural & Social Science Conference, Bath July 2023

The 2023 CREST (Centre for Research & Evidence on Security Threats) BASS (Behavioural and Social Science in Security) conference was a packed three days of very diverse and interesting talks. There were two great keynotes; firstly **David Matthews** talked about “Intersubjectivity and communicative rationality in defence and national security contexts”. He illustrated how the strategic environment is rapidly changing with what he described as “lessons from the field” from Timor-Leste, Iraq and Afghanistan. This was carried out by deploying a social science team to discover how conflict and Western troops are affecting the local population and create socio-culturally appropriate recommendations and interventions. What looks good in policy terms when briefing and planning remotely may be very different when you are trying to ascertain “ground truth” in the field and may have unintended consequences. Using adversarial approaches risks alienating local communities and can affect credibility. The role of social scientists should be to mobilise empathy for the “other” and avoid using adversarial approaches. Local needs have local priorities and behaviour must be transparent, especially when building a long term relationship. The conference closed with a keynote from **Professor Martin Innes**, Co-Director of the Security, Crime and Innovation Centre at Cardiff University. He gave us a fascinating talk on the use of OSINT (Open Source Intelligence). OSINT needs a blend of art, craft and science to be successful. Warfare introduces uncertainty, so how do we know what is real? The important issue is to have near real time monitoring, although sometimes having to deal with cold, hard facts; retroactive knowledge can update past events with information to aid future work. Modern war combines brutal kinetic activity with high level intelligence. The problem is we have an ecosystem based on publicity of exposure and this gets more attention than original threats.

During the three days there was a packed programme across the three themes of Risk Assessment and Management, Gathering Human Intelligence and Deterrence and Disruption. Some highlights were:

Wendy Moncur gave a thought provoking talk on the potential risk and harms of revealing personal data on-line. She covered digital literacy, cyber harms in the context of organisations, identity theft, unwelcome attention e.g. cyber bullying and how even using Strava to record your run can give away valuable personal information. The collection of aggregated data can lead to insight for a malign actor and is relevant for everyone.

Lewys Brace talked to us about his fascinating work on the Con.Cel project which focussed on the Incel (involuntary celibate) community, showcasing the work on extremism, online spaces, ideological contagion and UK based activities on Incels. Analysis of their behaviours and psychological traits is key in discovering the relationship between on-line discussion and offline violence.

Our very own **Matt Asher** updated us on the work into whether AI can really predict political affiliation. Historically based on physiognomy and although previous research shows a 73% accuracy rating, results in the replicated study (n1,998) never passed 66% accuracy and with biases in terms of who is and isn't accurately classified. Research is on-going into the implications of AI predicting behaviour.

Link: <https://crestresearch.ac.uk/>



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****CAISS Autumn/Winter Speaker Series****

Each month from September – December 2023 we will be hosting a talk from an expert in their field addressing an aspect of bias in their work.

We have: **Dr Sharon Glaas**, Senior Applied Linguist, Dstl, talking to us in September, **Professor Wendy Moncur**, Cyber Security Group Lead, from Strathclyde University in October,

Dr Lewys Brace, Senior Lecturer in Computational Social Science, University of Exeter in November and

Xiao Hui Tai Assistant Professor in Statistics from the UC Davies in December

Look out for the Teams meeting links which will be dropping into your mailbox before each talk. Unfortunately we cannot record these talks. Each one will take an hour in total with a chance for some questions and answers at the end. Don't miss these as they promise to be fascinating!

CAISS Bytes

Noam Chomsky a professor of linguistics has dismissed ChatGPT as “hi-tech plagiarism”, it has also been described as a “parrot” as it can only repeat what has been said before. There are concerns around how we will teach people to research, think and write, is using ChatGPT a “way of avoiding learning”? Further questions are posed such as: is the essay now dead, could a machine learning algorithm produce a better result, are students being failed if they do not find the content interesting enough to engage with? [Link https://www.openculture.com/2023/02/noam-chomsky-on-chatgpt.html](https://www.openculture.com/2023/02/noam-chomsky-on-chatgpt.html)

Nature magazine – tells us how Mushtaq Bilal is using a new generation of search engines, powered by machine learning and large language models, moving beyond keyword searches to pull connections from the mass of the scientific literature to speed up work. Some programs, such as Consensus, give research-backed answers to yes-or-no questions; others, such as Semantic Scholar, Elicit and Iris, act as digital assistants. Collectively, the platforms facilitate many of the early steps in the writing process. Critics note, however, that the programs remain relatively untested and run the risk of perpetuating existing biases in the academic publishing process. Can using AI free up time to allow more focus on innovation and discovery by drawing information from a massive body of literature and papers? Link below:

https://www.nature.com/articles/d41586-023-01907-z?utm_source=Nature+Briefing&utm_campaign=487d548e6a-briefing-dy-20230808&utm_medium=email&utm_term=0_c9dfd39373-487d548e6a-48999819

A global group of AI experts and data scientists have put together a voluntary framework for developing AI products safely. There are 25,000 members including Meta, Google and Samsung staff with a checklist of 84 questions for developers to consider at the start of an AI project. Data protection laws from various territories are included, and whether it is clear to a user that they are interacting with AI amongst others. There are questions for individuals developers, teams involved and for people who may be testing products. The public are invited to submit their questions. As the field of AI is rapidly evolving questions around bias, legal compliance and transparency and fairness, developers can contribute to building responsible and trustworthy AI systems. [Link https://www.bbc.co.uk/news/technology-66225855](https://www.bbc.co.uk/news/technology-66225855)