The ethics of data science conference

Addressing the future use and misuse of our data

Hosted by the University of Sydney from 27-29 March 2019, this forum will bring together world-renowned experts to address the current crisis in confidence around algorithms.

Invited speakers
Nicolas Hohn (QuantumBlack)
Professor Simon Jackman (USYD)
Associate Professor Seth Lazar (ANU)
Associate Professor Julia Powles (UWA)
Professor Toby Walsh (UNSW)
Dan Jermyn (CBA)
Matthew Beard (The Ethics Centre)

Date and location
27–29 March 2019
F23 Administration Building The University of Sydney

Contact
events.rsvp@sydney.edu.au
sydney.edu.au/data-science
Draft program

This program is a draft and it is current at the time of publishing. Further changes and updates may follow.

Wednesday 27 March 2019

4.30pm: Registration (30 minutes) - F23 Exhibition space

5pm: Welcome, Professor Sally Cripps, Director CTDS, The University of Sydney - F23 Auditorium

5.05pm: Acknowledgment of Country, Bianca Williams, Mana Yura Project Officer, Student Support Services, The University of Sydney - F23 Auditorium

5.10pm: Opening remarks by Professor Sally Cripps, Director CTDS, The University of Sydney - F23 Auditorium

5.15pm: Live polling Roman Marchant, Data Scientist CTDS, The University of Sydney

5.25pm: Keynote: Ethical Design: Is Data Science Different? Dr Matthew Beard, Fellow, The Ethics Centre - F23 Auditorium

6pm: Welcome reception (1 hour) - F23 Exhibition space

Thursday 28 March 2019

8.30am: Arrival tea and coffee (30 minutes) - F23 Exhibition space

Chair: Dr Roman Marchant, Data Scientist CTDS, The University of Sydney

9am: Keynote: 10 ways to get smarter about responsible AI. Nicolas Hohn, Associate Partner at McKinsey, Chief Data Scientist, QuantumBlack Australia. - F23 Auditorium

This talk will discuss practical steps that organisations can take to address ethical concerns when developing or using machine learning techniques.

9.40am: Paper Presentation Session 1

- 9.40-9.55
  Reducing harms or promissory hype?
  A preliminary social and ethical analysis of artificial intelligence in breast screening systems
  Professor Stacy Carter, Director Australian Centre for Health Engagement, Evidence and Values School of Health and Society, The University of Wollongong

- 9.55-10.10
  The Contested Futures of Health Archives and Algorithms: Introducing the Wellbeing Health & Youth Engagement Framework
  Dr Teresa Swist, Institute for Culture and Society, Western Sydney University

- 10.10-10.25
  Shaping People-Centred Data Science Practices
  Dr Theresa Dirndorfer Anderson, Consultant, Ethical AI Australia

10.25am: Coffee Break (20 minutes) - F23 Exhibition space

10.45am: Paper presentations session 2

- 10.45-11.00
  Cybersecurity and the Ghost of Future Anonymity
  Alexander Vipond, Quantum Security Researcher, CISS, The University of Sydney

- 11.00-11.15
  Computer says “no”: automation, algorithms and artificial intelligence in Government decision-making
  Dominique Hogan-Doran SC, Senior Counsel, Australian Bar

- 11.15-11.30
  Computational complexity, completeness and uncertainty in algorithmic governance
  Elija Perrier, University of Technology Sydney

- 11.30-11.45
  Why Algorithms are Better than Humans: Analysing the New Zealand Electoral Rolls 2014-2020
  Matthew Gibbons, Victoria University of Wellington

- 11.45-12.00
  Are Algorithms Affecting the Democracy in Brazil Victor N. Silva, PhD Student, University of Alberta

12.00pm: Lunch (1 hour) - F23 Exhibition space

Chair: Professor Sally Cripps, Director CTDS, The University of Sydney

1.00pm: Keynote: Studying humans in the age of machine learning: practical and ethical challenges.

Professor Simon Jackman, CEO, US Studies Centre, University of Sydney - F23 Auditorium

Large data sets on human behaviour and attitudes coupled with machine learning techniques are increasingly deployed in commercial and public sector settings. Ethical issues can easily arise in constructing predictive models and in implementing insights derived from these models, say, when features such as age, gender, ethnicity, sexual orientation, health or criminal histories — often deemed to be “protected characteristics” in employment law and many other settings — are predictive with respect to the behaviour or attitude of interest. These issues long predate the use of ML, but are especially acute with “black box” ML models, where the mapping from features to predictions has be discovered after model fitting, and is likely to be non-linear and dependent on other variables. I discuss insights and solutions applicable at (a) the design phase of public policy analysis, (b) the model-building phase, (c) the model interpretation phase; (d) the policy implementation phase. I stress that algorithms per se are neither ethical nor unethical. Rather, the humans using algorithms in these settings have the same ethical obligations researchers have always had, but with some sensitivity and awareness required for the special challenges posed by big data sets on human subjects in the age of machine learning.

1.40pm: Keynote: What we don’t talk about, when we talk about ethical AI.

Julia Powles, Associate Professor of Technology Law & Policy, University of Western Australia - F23 Auditorium

2.20pm: Paper Presentations Session 3 - F23 Auditorium

- 2.20- 2.35
  On the impossibility of formalising fairness in ML
  Finnian Lattimore, Gradient Institute

- 2.35- 2.50
  Ethical algorithms “by design”
  Dr Monique Mann, Prof Marcus Foth, A/Prof Peta Mitchell, Queensland University of Technology

- 2.50-3.05
  Machine learning might be the answer: but can we ask the proper question?
  Lucas Beck, IT University of Copenhagen

- 3.05- 3.20
  Interpreting Social Respect: A Normative Lens for ML Models
  Ben Hutchinson, Google

- 3.20- 3.35
  Algorithmic Stereotypes: Implications for Fairness of Generalising from Past Data
  Daniel McNamara, Australian National University and CSIRO Data61

3.35pm: Afternoon tea (25 minutes) - F23 Exhibition space

4pm: Paper presentations session 4 - F23 Auditorium

- 4.00-4.15
  Designing ethical algorithms has ethical pitfalls
  Tiberio Caetano, Chief Scientist, Gradient Institute
Draft program

- 4.15- 4.30
Searching for a better present: a proposal for embedding fairness into artificial intelligence models
Tanya Krupiy, Tilburg University

- 4.30 - 4.45
The reasonable coder
Petros Terzis, University of Winchester

- 4.45-5.00 Layered Explanations: Interpreting Neural Networks with Numerical Influence Measures
Ho Xuan Vinh, National University of Singapore

- 5.00-5.15
Information Privacy in the Context of Sensitive Data
Fabian Held, The University of Sydney

5.30pm: In conversation Microsoft President Brad Smith - MacLaurin Hall, Quadrangle Building, The University of Sydney (1 hour)

Friday 29 March 2019

Chair: Professor Nick Enfield, Professor of Linguistics at the University of Sydney, Director Sydney Social Sciences and Humanities Advanced Research Centre, and the Sydney Centre for Language Research

9am: Keynote: Building customer trust in the age of AI
Dan Jermyn, Head of Data Science, Commonwealth Bank of Australia

While the possibilities of Artificial Intelligence are well recognised, experts have raised concerns about bias and fairness, interpretability and accountability. In this session, we’ll hear how the Commonwealth Bank of Australia is tackling these challenges head-on, in leveraging AI to improve financial wellbeing for customers and communities, deliver better experiences and meet the demands of the future in an ethical way.

9.40am: Keynote: On the possibility of moral AI
Seth Lazar Associate Professor of Philosophy at Australian National University, head of school of philosophy, and project lead of the Humanising Machine Intelligence Grand challenge. - F23 Auditorium

Many people seem to think that there are profound obstacles to our ever developing ‘moral AI’. Some of these apparent obstacles derive from specific, often highly contentious philosophical assumptions. In this talk, I will identify and argue against those assumptions, suggesting that moral AI is not such a lofty (or unreachable) goal after all.

10.20am: Coffee Break (30 minutes) - F23 Exhibition space

10.30am: Paper presentations session 5 - F23 Auditorium

- 10.50-11.05 Algorithmic judges and human dignity: a signatory approach to algorithmic discrimination
Andre Dao, University of Melbourne

- 11.05-11.20 Algorithmic decision-making and the control problem
John Zerilli, University of Otago

- 11.20-11.35
Ethical algorithms in the Age of the Centaur
David Toffley, Griffith University

- 11.35-11.50
Making Heuristics Real Practical Processes and Tools for Building-in Accountability by Design Peter Leonard, University of New South Wales

- 11.50-12.05
The value of consciousness and free will in a technological dystopia
Allan McCay, University of Sydney Foundation Program, and Centre for Agency, Values and Ethics, Macquarie University (Affiliate Member)

- 12.05-12.20
The Rule of Law and Automation of Government Decision Making
Monika Zalnieriute, University of New South Wales

12.20pm: Lunch (1 hour)

Chair: Roman Marchant, Data Scientist, CTDS, The University of Sydney

1.20pm: Keynote: AI and Ethics: Why all the fuss?
Professor Toby Walsh, Scientia Professor of Artificial Intelligence, UNSW, - F23 Auditorium

Covering topics from autonomous vehicles to killer robots, Professor Walsh will discuss the new issues AI is bringing to the table, and the old issues that are resurfacing as a result.

2pm: Coffee break (30 minutes) - F23 exhibition space

2.30pm: Workshops (2 hours)

- Workshop 1: Ethics of AI in Law and Criminal Justice
Dr Roman Marchant, Senior Research Fellow and Lecturer, Centre for Translational Data Science, Sydney Institute of Criminology, The University of Sydney – Chair
Steven Southgate, Director Statewide Operations, Juvenile Justice, Department of Justice NSW
Dr Garner Clancy, Associate Professor Sydney Law School, The University of Sydney
Jackie Fitzgerald, Director, NSW Bureau of Crime Statistics & Research
Professor Lyria Bennett Moses, Director of the Allens Hub for Technology, Law and Innovation and Professor in the Faculty of Law at UNSW Sydney

F23 Auditorium 1

- Workshop 2: e-B2C, Electronic business-to-consumer data, ethics and algorithms
Ashley Brinson, Chief Executive Officer, The Warren Centre – Chair
Alan Kirkland, Chief Executive Office, Choice
Carla Hoorweg, Head of Government and Industry Relations, Challenger Limited.
Dr Tiberio Caetano, Chief Scientist, Gradient Institute
Aurelie Jacquet, Chair of Standards Committee IT-043 on Artificial Intelligence

F23 Auditorium 2

- Workshop 3: Human Rights
Edward Santow, Human Rights Commissioner, Australian Human Rights Commission – Chair
Kimberlee Weatherall, Professor of Law, The University of Sydney Law School
Peter Leonard, Principal, Data Synergies Pty Limited, Professor of Practice, UNSW Business School
Prof Toby Walsh, Scientia Professor of artificial intelligence, UNSW

Function room, Level 5

- Workshop 4: Health, Genomics and Patient Privacy
Chair: Samantha Shields, Director, Financial Services Law, KPMG
Ben Gilbert, Attorney, Corporate, External, and Legal Affairs, Microsoft
Stephen Bolinger, Chief Privacy Officer, Cochlear
Warren Kaplan, Chief of Informatics, Garvan Institute of Medical Research – Room 515+518, Level 5

4.30pm: Closing remarks Professor Sally Cripps, Director CTDS, The University of Sydney - F23 Exhibition space

4.35pm: Networking drinks (30 minutes) - F23 exhibition space

5.05pm: End of Conference
Keynote speakers

Nicolas Hohn
Chief Data Scientist at QuantumBlack Australia

Nicolas is an Associate Partner at McKinsey, and the Chief Data Scientist for QuantumBlack Australia. He advises organisations on starting or progressing along their analytics journeys. He provides thought leadership and expertise across data science and key enablers such as talent and technology. Prior to joining Digital McKinsey in 2016, Nicolas was Head of Data Science for Dun & Bradstreet Australia.

Professor Simon Jackman
CEO of the United States Studies Centre

Simon Jackman’s teaching and research centres on public opinion, election campaigns, political participation, and electoral systems. He is known for his work on poll averaging – combining polls over the course of an election campaign to produce better predictions of election outcomes.

Associate Professor Seth Lazar
Philosophy Head of School, ANU

Seth has published widely on the ethics of war, moral decision-making under risk and uncertainty, and other topics in moral and political philosophy. He has written one monograph, Sparing Civilians, and has another under contract, Duty under Doubt, with Oxford University Press. He also edited the Oxford Handbook of Ethics of War.

Associate Professor Julia Powles
Associate Professor of Technology Law & Policy, UWA

Julia joined UWA in January 2019, after more than a decade in Europe and the US. Her research focuses on civic and rights-based responses to emerging technologies. She is an expert in privacy, intellectual property, internet governance, and the law and politics of data, automation, and artificial intelligence.

Professor Toby Walsh
Scientia Professor of artificial intelligence, UNSW

Toby Walsh is a leading researcher in the field of artificial intelligence. He leads the Algorithmic Decision Theory group at Data61, Australia’s Centre of Excellence for ICT Research, and is guest professor at the Technical University of Berlin. He has been elected a fellow of the Australian Academy of Science, and has won the Humboldt research award as well as the NSW Premier’s Prize for Excellence in Engineering and ICT.

Dan Jermyn
Head of Data Science, Commonwealth Bank of Australia

Dan Jermyn is an experienced leader in both technology and data science, with an established record of building award-winning, global teams in digital, big data and customer decisioning. Dan joined the Commonwealth Bank of Australia in 2017, where he has responsibility for delivering great customer experiences and innovative new solutions through data science.
Keynote speakers

Dr Matt Beard
Fellow, The Ethics Centre

Dr Matt Beard is a husband, dad and a moral philosopher with an academic background in applied and military ethics. He is a Fellow at The Ethics Centre and co-author of Ethical By Design: Principles for Good Technology. Recently, Matt’s focus on ethics and technology has seen him engage and collaborate with organisations such as Salesforce, Atlassian, the NSW Government and the Australian Human Rights Council. In 2016, Matt won the Australasian Association of Philosophy prize for media engagement, recognising his “prolific contribution to public philosophy”.

Workshop chairs and panellists

Warren Kaplan
Garvan Institute’s Chief of Informatics

Warren Kaplan founded and leads Garvan’s Data Intensive Computer Engineering (DICE) group, that designed and built Garvan’s High Performance Computing, Cloud and Big Data infrastructure.

Ed Santow
Human Rights Commissioner

Edward Santow has been Human Rights Commissioner at the Australian Human Rights Commission since August 2016. He is currently leading the Commission’s work on detention and implementing the Optional Protocol to the Convention Against Torture (OPCAT); refugees and migration; human rights issues affecting LGBTI people; counter-terrorism and national security; technology and human rights; freedom of expression; and freedom of religion.

Alan Kirkland
CEO of CHOICE

Alan is CEO of CHOICE, Australia’s national consumer organisation. He has a background in public policy, social movements and the justice system.

Ben Gilbert
Attorney (Australia and New Zealand) Corporate, External, and Legal Affairs, Microsoft

Ben is a commercial attorney supporting Microsoft ANZ. In particular he supports the teams engaged in licensing cloud products and digital transformation solutions to large enterprise and public sector customers, and Microsoft’s consulting services business. He is currently Microsoft’s ANZ’s legal lead for the Health and Retail industries. Ben was shortlisted as the Australasian Young In-house Lawyer of the Year at the 2018 Australasian Law Awards.

Tiberio Caetano
Chief Scientist, Gradient Institute

Tiberio is a machine learning researcher and academic, having published extensively at the top academic conferences and journals in the field, as well as graduated numerous Ph.D. students. He is a data science leader and founder and has led the development of AI systems driving automated decisions impacting millions of people. He is also an adjunct professor at UNSW.

Steven Southgate
Director Statewide Operations, Juvenile Justice, Department of Justice NSW

Steve began working in the Justice portfolio in 1992 as a Prison Officer in the United Kingdom. He progressed to various portfolios in England, leaving in 2011 as a Governor grade. He travelled to Australia to work in the private sector managing detention centres before taking an executive position focusing on the welfare of detainees. Steve moved back into Government in Western Australia as the Assistant Commissioner for the Department of Corrections before taking up the role as the Director for Statewide Operations in Juvenile Justice NSW in July 2017 where he currently remains.
Workshop chairs and panellists

Dr Roman Marchant  
Senior Research Fellow and Lecturer, Centre for Translational Data Science, Faculty of Engineering and IT, Sydney Institute of Criminology, Sydney Law School

Roman has considerable knowledge in Machine Learning and Bayesian Statistics. This allows him to gather useful insights from large quantities of data or to create autonomous systems that learn and take decisions using fully probabilistic models that quantify uncertainty in outcomes of unknown processes.

Ashley Brinson  
Executive Director, Warren Centre for Advanced Engineering, the University of Sydney

Ashley has broad experience in engineering, R&D, and international business in the US, UK and China. Ashley is a Fellow of Engineers Australia and a lawyer of the Supreme Court of NSW.

Kimberlee Weatherall  
Professor of Law, The University of Sydney Law School

Professor of Law and Associate Dean (Research) at the University of Sydney Law School. Her interdisciplinary research agenda spans intellectual property, digital rights including privacy and the regulation of technology more broadly. She is a member of the Law Council of Australia’s IP Subcommittee as well as the Australian Computer Society’s AI and Ethics Committee.

Jackie Fitzgerald  
Director, NSW Bureau of Crime Statistics and Research

Jackie’s work has focussed on government priorities to reducing domestic violence and reoffending, the increasing NSW prison population, the intractable issue of Aboriginal over-representation, oversight of the development of a criminal justice simulation model to model the impact of policy reforms and improving external access to criminal justice data and impactful data visualisations.

Caral Hoorweg  
Head of Government and Industry Relations, Challenger Limited

Challenger Limited is an ASX-listed investment management firm managing around $81 billion in assets and focussed on providing customers with financial security for retirement. Prior to joining Challenger, Carla was Senior Policy Manager for Investment and Global Markets at the Financial Services Council.

Aurelie Jacquet  
Chair of Standards Committee IT-043 on Artificial Intelligence

Aurelie is the chair be of the new Australian national committee that mirrors the international standard on Artificial Intelligence (AI ISO). Her committee not only mirrors the work of the AI ISO in Australia, but also represents Australia at the AI ISO. She is also the founder of 'Ethics for AI and Automated Decision Making (Ethics for AI)', a professional working group, that will soon incorporate as a not for profit organisation. The aim of Ethics for AI, is to help define what ethical frameworks should be required for AI to automate decision making processes.
**Workshop chairs and panellists**

**Professor Lyria Bennett Moses**
**Director, Allens Hub for Technology, Law and Innovation and a Professor, Faculty of Law, UNSW Sydney**

Lyria’s research explores issues around the relationship between technology and law, including the types of legal issues that arise as technology changes, how these issues are addressed in Australia and other jurisdictions, the application of standard legal categories such as property in new socio-technical contexts, the use of technologically-specific and sui generis legal rules, and the problems of treating “technology” as an object of regulation.

**Peter Leonard**
**Sydney based data and technology business lawyer**

As principal of Data Synergies, many of his clients are data analytics services providers and business developing and implementing data driven projects and AI applications. Peter is also a Professor of Practice (Information Systems and Business Law) in the University of New South Wales Business School.

Peter chairs the Australian IoT (Internet of Things) Alliance’s Data Access and Use workstream, the Law Society of New South Wales Privacy and Data Law Committee and the Australian Computer Society’s Artificial Intelligence and Ethics Technical Committee.