Centre for AI, Trust & Governance

THE UNIVERSITY OF SYDNEY

AI Winter School

27-30 July 2026

Centre for AI, Trust and Governance

AI Winter School Participant Program

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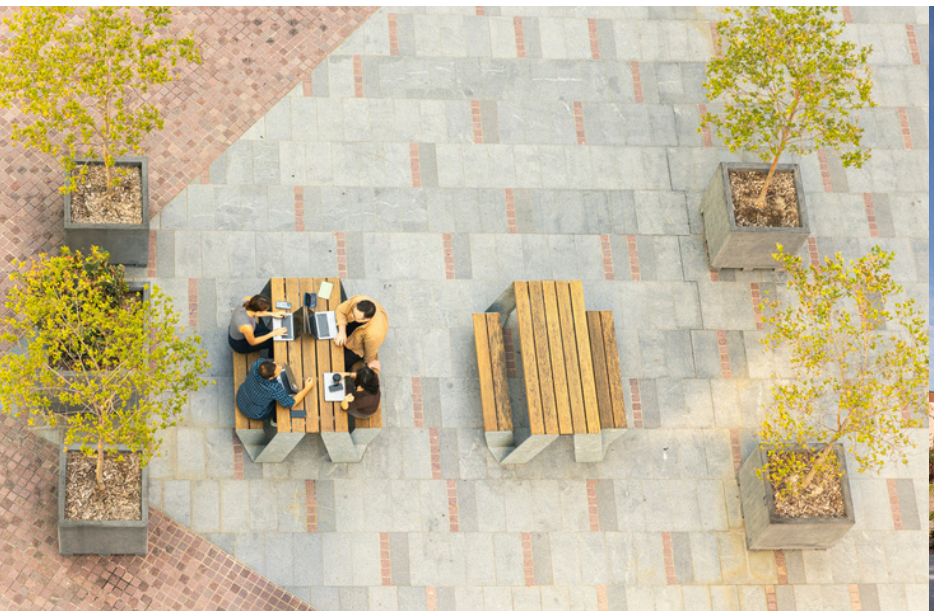


Welcome from the Co-Directors

On behalf of the Centre for AI, Trust and Governance, we warmly welcome you to this inaugural AI Winter School.

This program reflects our commitment to fostering critical, interdisciplinary engagement with artificial intelligence - spanning its technical foundations, ethical implications, and transformative impact on research, institutions, and society.

Throughout the week, you will not only build practical skills but also engage with fundamental questions about authorship, creativity, trust, and governance in an AI-enabled world.

We encourage you to take full advantage of the expertise in the room, share your own experiences, and experiment boldly with the tools and ideas presented.

We hope this program supports your research, sparks new collaborations, and strengthens our collective capacity to shape responsible and impactful uses of AI.

Professor Terry Flew
Co-Director, Centre for AI, Trust and Governance

Professor Kimberlee Weatherall
Co-Director, Centre for AI, Trust and Governance

We acknowledge the tradition of custodianship and law of the Country on which the University of Sydney campuses stand. We pay our respects to those who have cared and continue to care for Country.


USYD

Welcome to the inaugural AI Winter School at the Centre for AI, Trust and Governance
University of Sydney

We are delighted to welcome you to the inaugural AI Winter School at the Centre for AI, Trust and Governance.

Over four intensive days, you will engage with leading experts, participate in hands-on workshops, and develop practical strategies for integrating AI into your own research.

We are excited to have you join this community of experimentation. We look forward to the conversations, collaborations, and insights that will emerge throughout the week.

We have compiled this information to assist you getting to the University for your course.

Camperdown campus is close to Sydney's business district and sandy beaches. The surrounding areas are both cosmopolitan and multicultural, with the lively suburb of Newtown, laid-back Glebe Point Road, and the bustling Central Park precinct a short walk away.

The campus is located near Central and Redfern train stations, and is serviced by major bus routes around and through our grounds.

For more information on the Camperdown campus visit:

https://maps.sydney.edu.au/
To find out more about Sydney suburbs, visit cityofsydney.nsw.gov.au

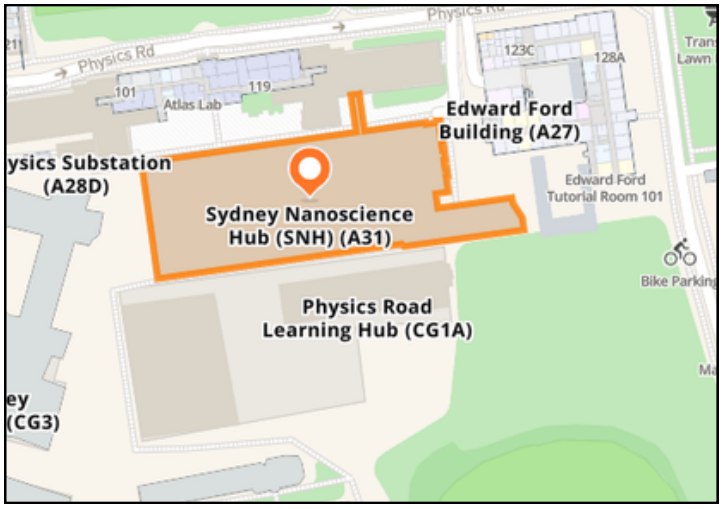
Our Camperdown/Darlington campus is less than 20 minutes by train from:

- Bondi Junction (15 minutes)
- Sydney city centre (3 minutes)
- Circular Quay (13 minutes)
- North Sydney (16 minutes)
- Strathfield (12 minutes).

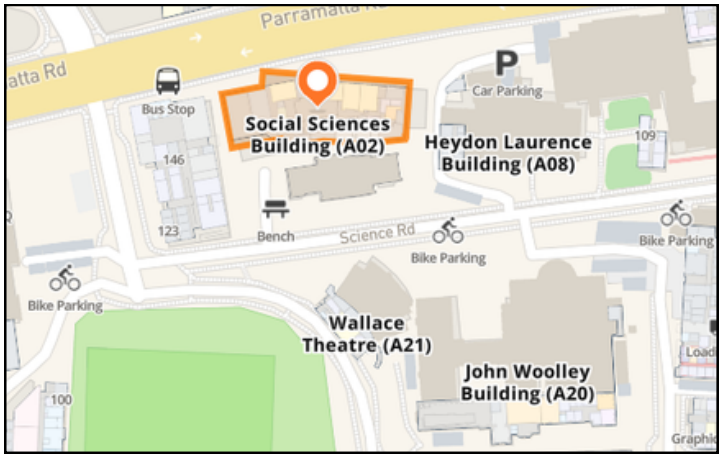
For more information visit sydneytrains.info

How to get to the AI Winter School

Venue - Days 1 , 2 and 3:
Sydney Nanoscience Hub
A31.03.3001 SNH Seminar Room 3001
University of Sydney
Camperdown campus



Venue - Day 4:
Social Sciences Building
A02 Level 6 Seminar Room 650
University of Sydney
Camperdown campus



Key winter school contacts

Dr Francesco Bailo
Deputy Director
Centre for AI, Trust and Governance
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Ellissa Nolan
Executive Officer
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How to prepare for the AI Winter School

What to bring:

Please bring your laptop, charger, mobile phone and any personal medications you may require.

Pre-readings

Recommended readings will be provided in our Winter School Teams group. We recommend you join the community to stay across the latest news, readings and information!

Accommodation

You can download a guide of accomodation providers close to campus. Please note: Accommodation options are suggested as a guide only. The University of Sydney is not affiliated with any business and accepts no responsibility for the actions of staff or others on these premises.

Download Accommodation Guide

Information while you are on campus

WIFI

Username: caitgwinterschool
Password: 273175
Available from 24 July - 31 July 2026

Emergencies

In the event of an emergency please dial 000 and ask for Police, Ambulance or Fire and Rescue. If you have allergies, asthma, or may require assistance with administering prescribed medication in an emergency, please let us know in advance.

Your safety on campus

SafeZone is a free safety app for all staff and students. SafeZone enables you to quickly contact Protective Services for emergencies, first aid, or general assistance, and receive important, urgent notifications in the event of an incident or emergency. Learn more about SafeZone. Download the SafeZone app for Apple or Android devices.

Breakout and quiet spaces

If you need to take time out there are quiet spaces available across the campus. Please feel free to take a break at any time throughout the course.

AI Winter School Program Overview

MONDAY 27 JULY 2026
VENUE: Sydney Nanoscience Hub, Building A31, Level 3, Seminar Room 3001
CAMPERDOWN CAMPUS

Time	Topic	Presenter	Title
9.00am	Opening: Registration, coffee & networking		
9.30am	**SESSION 1: INTRODUCTION TO AI, PROBLEMS & OPPORTUNITIES**		
9.30am	Welcome, introduction and overview	Dr Francesco Bailo	Deputy Director CAITG, Snr Lecturer in Data Analytics in the Social Sciences
9.40am	How AI is Reshaping the Social Sciences	Professor Terry Flew	Co-Director CAITG, Professor of Digital Communications & Culture
10.05am	Using AI to support your research	Dr George Argyrous	Social Survey Researcher
10.30am	Research Ethics & AI	Professor Kimberlee Weatherall	Co-Director CAITG, Professor of Law, University of Sydney Law School
11.30am	**SESSION 2: WHAT ARE RESEARCHERS ACTUALLY USING AI FOR?**	Dr Francesco Bailo	
1.00pm	Lunch Break		
2.00pm	**SESSION 3: AI, RESEARCH AND CREATIVITY**	Associate Professor Kazjon Grace	Computational Design Sydney School of Architecture, Design & Planning
3.30pm	**SESSION 4: PROJECTS PRESENTATION AND PERSONAL AI EXPERIENCE**	Chair: Dr Hongzhi (Veronica) Yang	Senior Lecturer, Faculty of Arts & Social Sciences
5.00pm	Closing		

Note: all sessions are correct at the time of publishing (June 2026), but may change subject to unforeseen circumstances.

AI Winter School Program Overview

TUESDAY 28 JULY 2026 **VENUE: Sydney Nanoscience Hub, Building A31, Level 3, Seminar Room 3001** **CAMPERDOWN CAMPUS**			
9.00am	Arrival		
9.30am	**SESSION 1: BUILD WITH AI: PYTHON AND AI FUNDAMENTALS**	Dr Nathaniel Butterworth	Science Catalyst Program Manager, Google
11.30am	**SESSION 2: TAILORING LLMS: RAG AND FINE-TUNING**	Dr Nathaniel Butterworth	
1.00pm	Lunch Break		
2.00pm	**SESSION 3: AI AGENTS FOR RESEARCH**	Dr Nathaniel Butterworth	
3.30pm	**SESSION 4: AI-ASSISTED RESEARCH WITH ANTIGRAVITY**	Dr Nathaniel Butterworth	
5.00pm	Closing		

Note: all sessions are correct at the time of publishing (June 2026), but may change subject to unforeseen circumstances.

AI Winter School Program Overview

WEDNESDAY 29 JULY **VENUE: Sydney Nanoscience Hub, Building A31, Level 3, Seminar Room 3001** **CAMPERDOWN CAMPUS**			
8.45am	Arrival and group photos in The Quad	Ellissa Nolan	Executive Officer, CAITG
9.30am	**SESSION 1: SYDNEY INFORMATICS HUB ON 'PROMPTING'**	Dr Angus Fisk	Data Science Trainer Sydney Informatics Hub
11.30am	**SESSION 2: AI FOR LITERATURE REVIEW**	Dr Francesco Bailo	Deputy Director CAITG, Snr Lecturer in Data Analytics in the Social Sciences
1.00pm	Lunch Break		
2.00pm	**SESSION 3: AI FOR WRITING REFINEMENT**	Dr Bronwen Dyson	Senior Lecturer, Discipline of English and Writing
3.30pm	**SESSION 4: CONTENDING WITH AUTHORSHIP: WHO OWNS THE IDEAS?**	Dr Louisa Shen	Post-Doctoral Researcher, Mediated Trust Research Office
5.00pm	Closing		

Note: all sessions are correct at the time of publishing (June 2026), but may change subject to unforeseen circumstances.

AI Winter School Program Overview

THURSDAY 30 JULY, 2026 VENUE: Social Sciences Building A02, Level 6, Seminar Room CAMPERDOWN CAMPUS			
9.00am	Arrival		
9.30am	**SESSION 1: AI FOR TEXT ANNOTATION**	Dr Justin Miller Chao Sun, Dr Senhui (Alex) Guo	Post-Doctoral Researcher Zhejiang University Computational Social Science Lab Sydney Informatics Hub
11.30am	**SESSION 2: LLM + AGENT-BASED MODELLING**	Dr Justin Miller	
1.00pm	Lunch Break		
2.00pm	**SESSION 3 - BEYOND SUBSTITUTION AND SCALE: AI AS A RECONFIGURATION OF SOCIAL SCIENCE METHOD**	Professor Noshir Contractor	Professor of Behavioural Sciences, Northwestern University
3.30pm	**SESSION 4: PROJECT DISCUSSION**	Chair - Dr Hongzhi (Veronica) Yang	Senior Lecturer, Faculty of Arts & Social Sciences
5.00pm	Farewell		

Session Details

Monday 27 July 2026

SESSION 1: INTRODUCTION TO AI, PROBLEMS & OPPORTUNITIES

Be prepared for a 4-day intensive AI learning sprint! Day 1 opens with an engaging introduction to artificial intelligence, exploring both its transformative potential and the complex challenges it presents across society, policy, and industry. This session will set the foundation for the Winter School by framing key problems and opportunities in AI, from issues of trust, governance, and ethics to innovation and real-world applications. Participants will be welcomed by the leadership team from the Centre for AI, Trust and Governance, with keynote addresses from Co-Directors Professor Terry Flew and Professor Kimberlee Weatherall, alongside Deputy Director Dr Francesco Bailo, offering expert insights into the evolving AI landscape and the critical role of interdisciplinary approaches in shaping its future.

SESSION 2: WHAT ARE RESEARCHERS ACTUALLY USING AI FOR?

An evidence-based overview of how researchers across disciplines are currently using AI tools, from writing to grant applications. Draws on recent survey data to ground the discussion in what is actually happening, not what is hypothetically possible. Introduces the key topics, concepts, debates, challenges, and tools for the remainder of the school.

SESSION 3: AI, RESEARCH AND CREATIVITY

What happens when the all-knowing answer-machine doesn't have the answer? Or when your question doesn't have one, objective answer? Should you avoid AI, with all its risks and potential harms, or is there another approach? This session will explore what the psychology of creativity tells us about the most (and least!) effective ways to use LLMs for idea development, brainstorming, and research. Hosted by Kaz Grace, who's been researching AI and creativity for two decades, it will take you through some of the common pitfalls that arise using these tools for original work.

SESSION 4: PROJECTS PRESENTATION AND PERSONAL AI EXPERIENCE

Building on the momentum of the day, this interactive session moves into a collaborative learning sprint where participants actively connect their research with practical AI use. Small-group roundtables will create space for participants to briefly share their research focus, current use of AI, and key goals for the Winter School, followed by a peer-driven "AI tool swap" to exchange practical tools, tips, and applications, culminating in a shared mini toolkit. After the break, the session will move through group synthesis, where participants will work together to identify shared themes across their projects, develop a creative group identity, and present their collective insights - including their top AI tools. The session concludes with an individual reflection activity, guiding participants to articulate their learning goals, project applications, and key questions, while identifying the tools, people, and ideas that will support their progress throughout the program.

Session Details

Tuesday 28 July 2026

SESSION 1: BUILD WITH AI: PYTHON AND AI FUNDAMENTALS

Beginner-friendly workshop designed for researchers and academics. We will focus on the core Python concepts essential for understanding the language-of-choice for modern AI workloads. We will explore fundamental concepts you will need for AI-powered research, starting with setting up our technical environment and foundational Python.

SESSION 2: TAILORING LLMS: RAG AND FINE-TUNING

A workshop designed specifically for researchers and students who want to learn how to fine-tune Large Language Models (LLM's) using participants' datasets. This workshop will introduce the fundamentals of model Fine-Tuning vs Retrieval Augmented Generation (RAG) and provide practical insights into how powerful LLMs can be tailored to your own specific (private) data requirements.

SESSION 3: AI AGENTS FOR RESEARCH

This workshop is an introduction to building AI "agents" for research using the Google Agent Development Kit (ADK). Give your agents the skills and tools they need to do useful work for you. It shows how an AI-agent differs from a standard Large Language Model. We will look at how to leverage AI-agents for scientific research, as well as using the Google ADK and alternate methods for constructing agentic pipelines. The outcome will be that participants build and orchestrate a team of agents to do useful work.

SESSION 4: AI-ASSISTED RESEARCH WITH ANTIGRAVITY

Google's new code editor, Antigravity, is an AI-assisted IDE (Integrated Development Environment) with native agentic and generative AI capabilities built into the platform to rapidly accelerate computational and data driven development and research. Antigravity is built on top of the Visual Studio Code editor for a familiar but accelerated user experience. The embedded agentic assistance allows users to spend more time solving research problems and less time debugging problematic code. This workshop will walk through simple, research-grounded examples to help you fit the Antigravity framework immediately to your own projects.

Session Details

Wednesday 29 July 2026

SESSION 1: SYDNEY INFORMATICS HUB ON 'PROMPTING'

This hands-on session covers the craft of prompting AI effectively. We explore how context shapes model outputs and walk through practical strategies and exercises for getting reliable, useful results. We also address critical evaluation: understanding where bias enters AI systems, why hallucinations occur and how to spot them, and how to navigate data privacy and sovereignty considerations when using AI tools in research. You will gain both practical skills to work with AI productively and critical judgement to know when not to trust it.

SESSION 2: AI FOR LITERATURE REVIEW

This session turns to the literature review as an ongoing process rather than a one-off task. We will look at how AI agents, as opposed to single chatbot queries, can help search, retrieve, screen, and summarise sources, and then accumulate and structure that knowledge into an organised, living base as a research project develops. Throughout, we will keep a critical eye on where agentic workflows genuinely help and where they fall short, including citation accuracy, provenance, and reproducibility.

SESSION 3: AI FOR WRITING REFINEMENT

How can you use AI to refine your writing while keeping your voice? The session addresses this timely question by helping you to 1) assess where your writing is in most need of development and 2) brainstorm with AI to refine just those aspects of your writing. To guide the assessment of your writing and potential contribution of AI, we will take as our guide Helen Sword's (2017) criteria for how successful academics write. Since this is a hands-on workshop, please bring along some of your current (unpublished) writing.

SESSION 4: CONTENDING WITH AUTHORSHIP: WHO OWNS THE IDEAS?

This session examines the question of where authorship lies for AI-generated or AI-assisted content. Legal implications for IP and copyright aside, the recognition of AI originality and the attribution of credit for creative acts to AI is contentious. Is it acceptable to leverage the intellectual and creative work of others en masse through technology? Is AI capable of originality, and on what terms? Do LLMs deserve authorial personhood? Further, is denial of authorship the denial of (corporate) responsibility? We discuss all these questions and more with respect to the assertion of 'the moral right of the author'.

Session Details

Thursday 30 July 2026

SESSION 1: AI FOR TEXT ANNOTATION

This session introduces participants to the use of large language models (LLMs) for annotating, labelling, and classifying text-based data, such as open-ended survey responses, social media content, and research abstracts. Part A covers the conceptual and methodological foundations: why LLMs are used for annotation, how to design effective prompts (zero-shot vs few-shot, label definitions, structured outputs), and what the research says about LLM annotators compared to human coders, including where each performs better and how to assess reliability. Part B is a hands-on annotation exercise using Wordflow, the LDaCA Text Analytics Workbench, a web app that lets researchers import a corpus, annotate it via an LLM-based feature, and move results between linked tools such as Frequency and Concordance. Participants will annotate a shared dataset first with a basic zero-shot prompt and then with an improved few-shot prompt, compare outputs across versions, and reflect on where the model struggled and how such results might be reported in a methods section.

SESSION 2: LLM + AGENT-BASED MODELLING

The second major technical workshop. Introduction to agent-based models and how LLMs can power more realistic agent behaviours. Participants build or interact with a simple ABM using LLM-driven agents to produce synthetic social data. Pre-built templates are provided and extended through vibe coding. Scaffolded for all skill levels with the conceptual logic explained accessibly before the hands-on component.

SESSION 3: BEYOND SUBSTITUTION AND SCALE: AI AS A RECONFIGURATION OF SOCIAL SCIENCE METHOD

As AI enters the research process, the temptation is to treat it as a faster substitute for what we already do, or as a way to enlarge the scale of familiar methods. Drawing on decades of work in computational social science and the science of networks, this keynote argues for a third path: that AI invites us to reconfigure how we ask questions about human behavior, from studying networks of people to simulating synthetic societies of humans and machines. The talk considers what this reconfiguration makes newly possible, and what it puts at risk, for how we understand performance, creativity, and collective identity.

SESSION 4: PROJECT DISCUSSION

In our closing session participants will translate insights from the Winter School into clear, actionable research plans. Participants will revisit their learning journey and develop a concrete approach for integrating AI into their own projects, supported by structured reflection and peer exchange. Beginning with an individual “Bridge” activity, participants will identify key takeaways, changes to their approach, and immediate next steps. In small groups, they will then share how they intend to apply these ideas and explore future research directions. Groups will collaboratively capture their immediate applications, longer-term opportunities, and potential collaborations before presenting highlights to the cohort in a series of short, focused presentations, fostering feedback, connection, and ongoing collaboration.

Speakers

Introducing the presenters

Professor Terry Flew

Terry Flew is Professor of Digital Communication and Culture at the University of Sydney, an ARC Laureate Fellow, and Co-Director of the CAITG. His publications include *Regulating Platforms* (2021) and *Valuing News* (2026). He is a former President and current Fellow of the International Communications Association, and a Fellow of the Australian Academy of the Humanities. His Laureate Fellowship (2024–2028) focuses on 'Mediated Trust.' He has recently been a Senior Visiting Fellow at the London School of Economics.

Professor Kimberlee Weatherall

Kimberlee Weatherall is a Professor of Law at the University of Sydney. She is a Fellow at the Gradient Institute, a research institute developing ethical AI, and in 2024 was a member of the Commonwealth Government's Temporary AI Expert Group. Her research focusses on technology regulation (with a focus on AI), and integration of understanding between philosophy, data science, law, and the social sciences. Her current work focuses on regulation of AI and automated decision-making, and the use of LLM-based agents for policy simulation.

Dr Francesco Bailo

Francesco Bailo is a Senior Lecturer in the School of Social and Political Sciences at the University of Sydney. His research focuses on political engagement and public discourse on social media. He investigates the dynamics of online communities, the relationship between news organisations and social media, and the role of digital media activists. He has engaged and applied quantitative research methods developing expertise in quantitative text analysis (NLP) and network analysis.

Professor Noshir Contractor

Noshir Contractor is the Jane S. & William J. White Professor of Behavioral Sciences at Northwestern University, where he investigates how networks form and perform. He is Executive Director of the Web Science Trust, past President of the International Communication Association (ICA), and a Fellow of the Academy of Management, the ICA, the Network Science Society, AAAS, and the ACM. He holds a Ph.D. from the University of Southern California.

Dr Hongzhi (Veronica) Yang

Dr. Hongzhi (Veronica) Yang is a Senior Lecturer in the School of Education and Social Work at the University of Sydney, specialising in pedagogical innovation and generative AI (GenAI). Her research explores how AI-assisted learning and online collaboration empower educators and students to build agency. She currently leads a project funded by the Centre for AI, Trust and Governance examining preservice teachers' distributed agency in learning with GenAI.

Associate Prof Kazjon Grace

Kazjon (Kaz) Grace is an Associate Professor in Computational Design at the University of Sydney's Design School. His research lies at the intersection of computational creativity, HCI and AI, exploring how computers can act as collaborative partners in the creative process. He develops computational models of processes like novelty, surprise, and curiosity, with the aim of creating AI that can help us ask the right questions, rather than just answers.

Speakers

Introducing the presenters

Dr Nathaniel Butterworth

Nathaniel (Nate) Butterworth is the Science Catalyst Program Manager at Google, where he coordinates global research collaboration effortRes. He holds an Honours degree in Astrophysics and a PhD in Geophysics. He specialises in utilising complex research computing infrastructure to solve challenging scientific problems.

Dr Louisa Shen

Louisa Shen is a Postdoctoral Research Associate for the ARC Laureate Fellowship on Mediated Trust and member of the Centre for AI, Trust, and Governance at the University of Sydney. She holds a PhD from the University of Cambridge, in the United Kingdom.

Dr Justin Miller

Justin Miller is a Postdoctoral Researcher at Zhejiang University's Computational Social Science Lab, collaborating on platforms for LLM-based agent modelling. His research sits at the intersection of computational social science, natural language processing, and AI-driven simulation. He holds a PhD in Physics from the University of Sydney which focused on clustering short text data using large language models.

Dr Bronwen Dyson

Bronwen Dyson is a Senior Lecturer in English and Writing. Her research explores Second Language Acquisition and Speech Pathology. She is the author of *Dynamic variation in second language acquisition: a language processing perspective (2021)* and *A developmental approach to assessing and treating agrammatic aphasia (2022)*. She is an active member of the Applied Linguistics Association of Australia (ALAA), and is currently Associate Editor of the Association's journal - the Australian Review of Applied Linguistics (ARAL).

Dr Angus Fisk

Angus Fisk is the lead Data Science Trainer at Sydney Informatics Hub, which enables excellence in computational and data-driven research by providing support, training and expertise in statistics, data science, AI, software engineering, simulation, visualisation, bioinformatics and research computing to researchers, industry and government. Angus originally trained as a Veterinary Surgeon, before undertaking a DPhil in Sleep and Circadian Neuroscience at the University of Oxford. He has experience with machine learning and traditional statistical data analysis in both Python and R, and is passionate about teaching reproducible science.

Dr George Argyrous

George Argyrous has taught research methods, statistics, and evidence based decision-making at UNSW, UTS, and the Australia and New Zealand School of Government. He has published extensively in these areas and has also advised many government departments and for-purpose organisations. He is currently leading a project to measure trust through a multi-country survey.

Acknowledgements

We warmly thank all participants for enrolling in and taking part in this year's AI Winter School. Your enthusiasm, curiosity, and engagement are central to making this experience so rewarding. We hope that during your time here you build new connections, strengthen your knowledge and skills, and gain fresh perspectives to carry forward. Most importantly, we hope you leave with increased confidence to apply what you are learning in your own research and future projects.

The Co-Directors of the Centre gratefully acknowledge the outstanding efforts of the AI Winter School organising committee in the development, planning, and delivery of this inaugural event. Their dedication, collaboration, and commitment have been instrumental in creating a high-quality and engaging program, and in bringing this initiative to life. We extend our sincere thanks for the time, expertise, and care invested in ensuring the success of the AI Winter School, and for laying a strong foundation for its future growth.

We would like to acknowledge the support to the University of Sydney Venues team, who have provided in-kind, the dedicated spaces for learning.

Organising Committee

Dr Francesco Bailo

Ellissa Nolan, MCA

Dr Virginia Balfour

Dr Hongzhi (Veronica) Yang

Dr Louisa Shen

THE UNIVERSITY OF SYDNEY

Closing

Statement of Completion

A Statement of Completion will be emailed to participants upon finishing the Winter School program; please note that a micro-credential badge will not be issued.

Terms and conditions

Will apply as per the University of Sydney Short Courses Terms and Conditions.

The AI, Trust and Governance Centre (CAITG) at the University of Sydney is our flagship hub for research and innovation examining the complexities of emergent AI technologies from a socio-technical perspective.

For more information
Faculty of Arts and Social Sciences
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