

MICHAEL HARRÉ, PhD

Complexity Economist | Economic Impact of AI | Large-Scale Modelling & Institutional Design

michael.harre@sydney.edu.au | New Zealand national | FIG Fellow, Mila (Yoshua Bengio) | Arcadia Impact Fellow
| Senior Lecturer, University of Sydney

Complexity economist working on the economic impact of AI, the structural transformation of firms and labour, and the macroeconomics of the AI transition. 15+ years building interdisciplinary research programmes that combine large-scale agent-based modelling, game theory, and institutional economics, with funding secured across government, military, and international sources (AU\$565k). Record of 100+ publications, alongside direct policy engagement with OECD.AI, the Reserve Bank of Australia, and a final-round economist candidacy for the Senior AI Economist role at Google DeepMind.

SELECTED RESEARCH PROGRAMMES

1. AI Governance, Concentration of Power, and Societal Impact

FIG Fellowship, Mila (Yoshua Bengio) | Arcadia Fellowship, ICML 2026 | OECD.AI | Lowy Institute | 2023–present

Examines AI's governance requirements at societal and international scale. The FIG fellowship at Mila, supervised by Yoshua Bengio, is producing a co-authored paper on AI economic sovereignty and concentration of power (in preparation), treating concentration risk as an emergent macroeconomic consequence of locally rational decisions rather than deliberate extraction. The Arcadia fellowship produced an eight-criterion framework for escalating AI incidents, stress-tested against ten documented cases and accepted at the [ICML 2026 TAIGR workshop](#). Policy outputs include an [OECD.AI](#) publication on no-code AI governance for the Global South, with teaching materials now hosted on the OECD platform, and economic-transition scenarios for the [Lowy Institute](#).

2. Systemic Economic Risk and Large-Scale Simulation

Lead Chief Investigator | Oxford INET – UCL – Sydney consortium | AU\$371k | 6 institutions | 2018–21

As lead Chief Investigator, built and managed a six-institution international consortium (Oxford INET, UCL, four Australian universities) studying systemic risk in housing markets through large-scale agent-based modelling, including models of 200,000+ agents. The team delivered a multi-scale economic resilience framework during COVID-19, and briefed Reserve Bank of Australia leadership on macro-risk. Key outputs include publishing in the foremost economic game theory journal: [Games and Economic Behavior](#), with invited presentations at Oxford INET and the ETH Zürich Risk Centre. 17 papers published.

3. AI, Institutional Economics, and the Structure of Firms and Markets

With Paul Ormerod and Rickard Neyman

Applies complexity economics and evolutionary game theory to how AI restructures firms and markets. Our “Coasean Reversal” project argues that AI inverts Coasean logic, externalising functions once held inside the firm and producing new concentration dynamics; the [theoretical paper](#) is on SSRN and an empirical companion is in preparation for HBR. [From Firms to Computation](#) formalises institutional governance for the AGI transition as a multi-level Price equation over nested games. A commissioned piece on algorithmic collusion is underway for the UK Competition and Markets Authority.

4. Multi-Agent AI, Game Theory, and Collective Intelligence

AAMAS 2025 | Games 2024 | US Air Force (USD 194k) | With David Wolpert, Santa Fe Institute

Models emergent strategic behaviour in multi-agent AI systems using active inference and game theory. Our [AAMAS 2025](#) paper demonstrates equilibrium selection, role reversal, and strategic confusion in game transitions; the [Games 2024 companion](#) formalises Theory of Mind as a structural tool for AI analysis. Earlier US Air Force grants funded computational models of human psychology in strategic decision-making. An ongoing collaboration with David Wolpert (Santa Fe Institute) and Jürgen Jost (Max Planck Institute) extends persona games to the governance of heterogeneous autonomous AI agents.

SELECTED POLICY ENGAGEMENT & INVITED TALKS

- **FIG/Mila Fellow with Yoshua Bengio** (2026): Economic Sovereignty and Power Concentration
- **Arcadia Impact Fellow** (2026): [Designing escalation criteria for international AI incident response](#)
- **Google DeepMind** (2025): final-round candidate for Senior AI Economist; presented “Economics in the AGI Transition” to Shane Legg’s leadership team.
- **Reserve Bank of Australia**: briefed leadership on macro-risk using large-scale agent-based models.
- **OECD.AI** (September 2025): “[From Risk to Resilience: No-Code AI Governance in the Global South](#),” with teaching materials hosted on the OECD platform.
- **Lowy Institute** (July 2025): [Australia’s \\$17 trillion AI moment](#)
- **Oxford INET** (2019), **ETH Zürich Risk Centre** (2021); **Karl Friston’s lab, UCL** (2023).

EDUCATION

- **PhD, Computational Economics**, University of Sydney (2009), in collaboration with Stanford University and the Santa Fe Institute (Prof. David Wolpert). Dissertation “Subrationalal Equilibria in Economic Game Theory,” with related work published by the Federal Reserve Bank of Boston.
- **MSc (First Class Honours), Applied Mathematics**, University of Auckland (1999).

CURRENT & PRIOR POSITIONS

- **Senior Lecturer, University of Sydney**: core member, Centre for AI Trust and Governance; teaching in Python, R, and computational methods for economics (to 2026).
- **Director, External Research Engagement, School of Computer Science, University of Sydney** (2025–present): policy, industry, and academic engagement across government, local, and international institutions.
- **Regulatory Economist, New Zealand Commerce Commission** (2001–2002): pricing regulation and competition frameworks under the Telecommunications Act 2001.

SELECTED PUBLICATIONS

- “The Coasean Reversal: AI and the Boundaries of the Firm” (Harré & Ormerod, 2026).
- “Designing Escalation Criteria for International AI Incident Response: Criteria, Triggers, and Thresholds” (*ICML*, 2026), arXiv:2604.23183.
- “From Firms to Computation: AI Governance and the Evolution of Institutions” (2025), arXiv:2507.13616.
- “Factorised Active Inference for Strategic Multi-Agent Interactions,” (*AAMAS* 2025), arXiv:2411.07362.
- “Testing Game Theory of Mind Models for Artificial Intelligence,” (*Games*, 2024).
- “Complexity Economics in a Time of Crisis” (*Entropy*, 2021)
- “An AI Theory of Mind Will Enhance Our Collective Intelligence” (2024). arXiv:2411.09168
- “Democratizing AI Governance: A Commons-Based Model for ASEAN’s Skills Transition” (SSRN, 2025).
- “Governing LLMs in Research: A Commons-Based Playbook” (SSRN, 2025).
- “Responsible AI Integration into Research Practice” (SSRN, 2025).
- “Introduction to Transfer Entropy” (*Springer Nature* book, 2016, most cited work, 500+ citations).

TECHNICAL & METHODOLOGICAL SKILLS

- **Large-scale agent-based modelling**: economic models of 200,000+ agents for systemic-risk detection, scenario analysis, and macro stress-testing.
- **Complexity economics & dynamics**: non-linear dynamics, critical phenomena, multi-scale modelling, network theory, information theory.
- **Game theory & multi-agent systems**: equilibrium analysis, active inference, Theory of Mind for AI.
- **Interdisciplinary integration**: economics, computer science, physics, and cognitive science, with translation for policy and industry audiences.