

TOBIN SOUTH

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in tobin-south

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EDUCATION

PhD – MIT – Fulbright Scholar

Massachusetts Institute of Technology – MIT Media Lab

📅 2021-2025 Working on building privacy, security, and verifiability into frontier AI from first principles. The work has spanned across fields, from decentralized private data sharing to verifiable evaluation attestations for large AI models. Advised by Alex 'Sandy' Pentland in MIT Connection Science at the MIT Media Lab and Connection Science in the Institute for Data, Systems, and Society (IDSS). Fully funded for 5 years through the Australian-American Fulbright Future Scholarship program. Committee members are Glen Weyl of Microsoft Research and Michiel Bakker of Google Deepmind.

Masters of Philosophy in Applied Mathematics and Data Science

The University of Adelaide

📅 Jan 2019-Mar 2021 Two year research masters program with thesis receiving a Deans Award for Excellence. Research into the flow of information within the news ecosystem on social media. Developing tools to identify and estimate influence between actors within text producing networks. Four research papers were published in peer-reviewed journals. Fully funded by university on academic merit.

Valedictorian – Bachelor of Mathematical and Computer Sciences

The University of Adelaide

📅 Mar 2016 – Dec 2018 Majoring in Statistics and Applied Mathematics with additional courses in Computer Science and Economics. Awarded Academic Excellence in Economics, School of Computer Science Ingenuity Award and Valedictorian of the graduating class of Mathematics, Computer Science and Electrical Engineering.

WORK EXPERIENCE

Microsoft Research PhD Intern

📅 2023 ~ PhD Internship at Microsoft Research Redmond working on secure and auditable benchmarking of ML models using zero-knowledge proof systems. Supporting the new AI alignment work with verifiable credentials research.

E14 Fund – VC Fellowship

📅 2023-2024 ~ Member of the core fund team helping with due diligence and investment thesis building for AI investments.

Computational Epidemiological Modeling COVID-19 for Australian Federal Government

📅 2020-2021 ~ Leading the hierarchical Bayesian modeling project to forecast state level case loads with interstate & international cross-flows in real time for government decision making; contributing one third of the final decision making aggregate forecasts for the Australia Federal Government.

AI / NLP Consultant – Brainframe

📅 2019-2020 ~ My work specialised in building solutions with natural language processing (NLP) and large scale online data sources. Working with a team of consultant AI experts to deliver custom machine learning driven products to a diverse base of clients.

Startup Co-founder – ClearerConsent

📅 2020 ~ Healthcare technology start-up using digital tools to reinvent the informed consent process. With a mission to help Australians of diverse backgrounds to understand healthcare on their own terms. Founded after winning national MedTech hackathon.

Startup Co-founder – PeopleTalk

📅 2019 ~ Started a small bespoke data-science analysis company to apply natural language tools to help extract real value from large unstructured data sources. Many lessons were learned along the journey. Acquired by Brainframe.

SELECT ACADEMIC PAPERS

A total of 19 academic papers completed on Google Scholar. Current highlights of relevant work include:

- [1] Tobin South, Alexander Camuto, Shrey Jain, Shayla Nguyen, Robert Mahari, Christian Paquin, Jason Morton, and Alex 'Sandy' Pentland. Verifiable evaluations of machine learning models using zksnarks. *Under review at ICML*, 2024.
- [2] Guy Zyskind, Tobin South, and Alex Pentland. Don't forget private retrieval: distributed private similarity search for large language models. *Manuscript Under Review*, 2023.
- [3] Tobin South, Robert Mahari, and Alex Pentland. Transparency by design for large language models. *Computational Legal Futures, Network Law Review*, 2023.
- [4] Alex Berke, Tobin South, Robert Mahari, Kent Larson, and Alex Pentland. zktax: A pragmatic way to support zero-knowledge tax disclosures. *Under review at WWW*, 2023.
- [5] Tobin South, Nick Lothian, Takahiro Yabe, and Alex 'Sandy' Pentland. Building a healthier feed: Private location trace intersection driven feed recommendations. In *International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation*, pages 54–63. Springer, 2023.

RECENT INVITED AND CONFERENCE TALKS

Invited Talks

- "Verifiability and Trust for AI", Davos – Imagination in Action (2024)
- "Verifiable AI Evaluations" – EY Chief Audit Executive Luminary Series (2024)
- "Privacy and AI Regulation" – Mens, Manus and Machina (M3S), Singapore (2024)
- "Transparency by Design" – MIT Digital Conference, Generative AI Event (2023)
- "Trustworthy Networks: How decentralized networks allow users to create value and trust in the digital age." – SAP Sapphire Barcelona (2023)
- "The future of data science: LLMs and distributed data" – Adelaide Data Science Center (2023)
- "Privately confessing your love: a zero-knowledge technical primer" – MIT Media Lab Research Talks (2023)

Conference Talks and Posters

- AAAI Workshop on Privacy-Preserving Artificial Intelligence, Workshop Poster (2024)
- 9th International Conference on Computational Social Science, 1 Talks, 2 Posters (2023)
- Sunbelt Conference, International Network for Social Network Analysis, 3 Talks accepted (2022)
- 8th International Conference on Computational Social Science, 2 Talks, 3 Posters (2022)
- Opening Keynote – Student Symposium in Combinatorics, Keynote (2022)
- 6th International Conference on Computational Social Science, Poster (2020)
- 16th Workshop on Algorithms and Models for the Web Graph, Talk (2019)

Organized Events

- Workshop on end-to-end privacy for generative AI, MIT, 2023
- Workshop on the use of secure AI in the law, Adelaide, 2024

COMMUNITY & VOLUNTEERING

- MIT Graduate Student Council – Media Lab Representative (2021-)
- Media Lab Student Committee (StudCom) – Treasurer (2021-)
- Student Subgroup of the Media Lab Futures Committee (2022-)
- Postgraduate Representative – School of Mathematical Sciences (2019-2021)
- Leader in Design and Engineering Practical Team (2017-2020) – Project leader working with students to create robots and develop new skills.
- Submission to Senate Select Committee on the Future of Work and Workers (2018)
- Founding Member of Women in STEM Society (2017-2019) – Creating a mixed-gender society for whole-community advocacy for women in STEM.
- Volunteer for Act For Kids, Science Alive, Parkrun, and Rotaract (2016-2020)