

TOBIN SOUTH

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in tobin-south

🌐 tobinsouth

EDUCATION

Doctorate of Philosophy – Fulbright Future Scholar Massachusetts Institute of Technology – MIT Media Lab

📅 2021-2026 Pushing the frontier of technology designed to help us conduct science in the human world. Advised by Alex ‘Sandy’ Pentland, one of the founding fathers of modern computational social science, computer vision, and pervasive computing, in the Human Dynamics group 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.

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. Research published in peer reviewed journals [3, 6]. Several additional research projects beyond the scope of my research (including work on network centrality stability [5] and ecological modeling of media based social networks [7]), with a keen interest in collaborating diversely. 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. Active member of several societies while studying above normal course load to make the most of my time at University. 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

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.

Intern at Data To Decisions – Sentiment Model Development

📅 2019 ~ Worked on developing a machine learning sentiment model to predict emotions in text conversations for the SemEval 2019 International Workshop Task 4. Scored in the top 5% of finalists. Paper published: “The Importance of Being Shallow”

ACADEMIC PAPERS

- [1] Tobin South, Nick Lothian, and Alex 'Sandy' Pentland. Building a healthier feed: Private location trace intersection driven feed recommendations. *arXiv preprint arXiv:2210.01927*, 2022.
- [2] Tobin South, Robert Mahari, and Alex 'Sandy' Pentland. Justice in a Vacuum? *Network Law Review*, 2023.
- [3] Tobin South, Bridget Smart, Matthew Roughan, and Lewis Mitchell. Information flow estimation: A study of news on Twitter. *OSNEM Special Issue: Information and Opinion Diffusion in Online Social Networks and Media*, May 2022.
- [4] Isabella Loaiza, Tobin South, German Sanchez, Serena Chan, Alice Yu, Felipe Montes, Mohsen Bahrami, and Alex Pentland. Voyage Viewer: Empowering human mobility at a global scale. *EuroVis Workshop on Visual Analytics*, 2022.
- [5] Tobin South, Matthew Roughan, and Lewis Mitchell. Popularity and Centrality in Spotify Networks: Critical transitions in eigenvector centrality. *Journal of Complex Networks*, 8(6):cnaa050, March 2021. ISSN 2051-1310, 2051-1329. doi: 10.1093/comnet/cnaa050.
- [6] Tyson Pond, Saranzaya Magsarjav, Tobin South, Lewis Mitchell, and James P. Bagrow. Complex Contagion Features without Social Reinforcement in a Model of Social Information Flow. *Entropy*, 22(3):265, March 2020. doi: 10.3390/e22030265.
- [7] Matthew Roughan, Lewis Mitchell, and Tobin South. How the Avengers assemble: Ecological modelling of effective cast sizes for movies. *PLOS ONE*, 15(2):e0223833, February 2020. ISSN 1932-6203. doi: 10.1371/journal.pone.0223833.
- [8] Andrew Nguyen, Tobin South, Nigel Bean, Jonathan Tuke, and Lewis Mitchell. Podlab at SemEval-2019 Task 3: The Importance of Being Shallow. In *Proceedings of the 13th International Workshop on Semantic Evaluation*, pages 292–296, Minneapolis, Minnesota, USA, 2019. Association for Computational Linguistics. doi: 10.18653/v1/S19-2050.
- [9] Mehwish Nasim, Derek Weber, Tobin South, Jonathan Tuke, Nigel Bean, Lucia Falzon, and Lewis Mitchell. Are we always in strife? a longitudinal study of the echo chamber effect in the Australian twittersphere. *arXiv preprint arXiv:2201.09161*, 2022.
- [10] N. K. Golding, Freya M Shearer, Robert Moss, Peter Dawson, Dennis Liu, Joshua V. Ross, Robert W Hyndman, Pablo Montero-Manso, Gerry Ryan, Tobin South, Jodie McVernon, David J. Price, and James M. McCaw. Situational assessment of COVID-19 in Australia. Australian Health Protection Principal Committee (AHPPC), 2021.

CONFERENCE TALKS AND PUBLIC LECTURES

Conference Talks and Posters

- 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, MIT, Poster (2020)
- 16th Workshop on Algorithms and Models for the Web Graph, Talk (2019)
- 4th Annual Australian Social Network Analysis Conference (2019)
- AMSIConnect, Talk (2017) – *Best Student Presentation*

Public Lectures

- “Trustworthy Networks: How decentralized networks allow users to create value and trust in the digital age.” - SAP Sapphire Barcelona (2023)
- “Privately confessing your love: a zero-knowledge technical primer” - MIT Media Lab Research Talks (2023)
- “The Mathematics of Deepfakes” – AUMS Lecture Series (2019)
- “From Lil Wayne to Mozart: Network Dynamics in Spotify ” – Undergraduate Lecture (2018)
- Australian Centre for Excellence in Mathematics and Statistics Retreat (2019)

TEACHING

- Replacement Lecturer – Foundations of Computer Science (2019) – Lectured 200 postgraduate students in an double-unit course on key concepts in computer science for 5 weeks of semester. University of Adelaide.
- Tutor & Curriculum Design – Professional Practice (2020) – Teaching professional communication skills to students in mathematics and computer science. University of Adelaide.
- Lab Instructor & Curriculum Design – Mathematics for Data Science (2019) – Teaching Python and data science skills to undergraduates using fun problems and Jupyter Notebooks. University of Adelaide.
- Tutor – Foundations of Computer Science (2018 -19) – Communicating a range of computer science topics from beginner level to more advanced algorithms and data structures. Working mostly with international and mature age students. University of Adelaide.
- Intern / UROP Supervisor (2021-2023) – Supervising several UROPs from MIT and Interns from Australia through the MIT Big Data Living Lab.

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 mix gendered society for whole-community advocacy for women in STEM.
- Volunteer for Act For Kids, Science Alive, Parkrun and Rotaract (2016-2020)

OTHER AWARDS

- Fulbright Future Scholarship – Flagship US-Australian scholarship funding a full 5 years of a PhD
- Deans Award for Thesis Excellence – Awarded for MPhil Thesis
- Ingenuity Award – School of Computer Science at University of Adelaide – Chess Playing Robot
- Rotary Youth Leadership Development Camp

MEDIA COVERAGE

All items hyperlinked. For up to date links go to my homepage at <https://tobin.page>.

- "Southern Star" News Article
- South Australian Government article about Tobin
- Profile by the ARC Centre of Excellence for Mathematical and Statistical Frontiers
- Coverage of paper on Ecological Modeling of Marvel's MCU in Media
- Brief interview about former HealthTech startup