Xiaolan CAI

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I am an interdisciplinary researcher with expertise in civic tech, digital governance, and participatory data infrastructures. My work integrates communication theory, urban studies, and STS to explore citizen engagement in smart city contexts through FLOSS platforms.

Education

University of Canberra, currently.
- PhD candidate. Thesis: The Emergence of Open Source Smart City Projects in Australia and Their Impacts on Civic Engagement.

The Australian National University, **Feb. 2017-Mar. 2019.**
- Master of Social Research (coursework).

Chongqing University, China
- Master of Landscape Architecture, Sep. 2005- Jun. 2008.
- Bachelor of Architecture Sep. 2000- Jun. 2005.

Research experience

Research associate, N&MRC, University of Canberra, Feb. 2023 - now.

- UC Counter Misinformation Month (O'Neil Mathieu (PI), 2025). Co-developing the digital literacy intervention website and conducting data analysis.

- *DCPC: Operational and pilot research support for the Digital Commons Policy Council (O'Neil Mathieu (PI), 2023-2024).* Debian 2023 Survey: Economic and Environmental Sustainability—developed online survey using LimeSurvey, and performed comprehensive data analysis.

- *3B: Bots Building Bridges (3B): Theoretical, Empirical, and Technological Foundations for Systems that Monitor and Support Political Deliberation Online (O'Neil Mathieu (PI), 2023-2025).* Conducted information diversity analysis.

Research assistant, N&MRC, University of Canberra, Mar. 2019 - now.
- *Digital News Report 2023 & 2024 (Park Sora (PI), 2023&2024).* Built DNR Dashboard with R Shiny, wrote R syntax to generate tables and charts for DNR automatically, and drafted the codebook for the 9-year data.

- *Mapping the contribution of researchers on GitHub (O'Neil Mathieu (PI), 2022).* Originated the research concept, conducted data collection, data analysis and visualization, presented the results on conferences and wrote a journal article.

- *Health misinformation in social media networks (O'Neil Mathieu (PI), 2021).* Collected Twitter data via API, conducted content analysis, and social network analysis with R.

- *The social construction of mental health on Australian social media (O'Neil Mathieu (PI), 2020)*. Collected Twitter data via API, conducted content analysis, and social network analysis with R, co-presented in seminars.

- *Mapping the co-production of digital infrastructure by peer projects and firms (O'Neil Mathieu (PI), 2019-2020)*. Collected data from GitHub via API and IT media (web scraping), built survey with Lime Survey, conducted text analysis and social network analysis with R, wrote methods and results sections in a journal article.

Research assistant, BGL, University of Canberra, Mar. 2021 -Dec.2021.
- *Social media and COVID-19 health misinformation: Evidence from Australia (Khan, Irfan (PI),2021)*. Engaged in drafting methods and risk assessment sections for ethical approval, designing and building online survey via Qualtrics, identified survey distribution channels, and conducted pilots with insiders; conducted a systematic review.

Research assistant, VOSON Lab, ANU, May – Dec. 2018.
- Tested on VOSONDash, an open source R Shiny App to collect and analyze social media data, drafted user guide, and reported on students' experience.

Intern, Australian National Internship Program, Tara Cheyne's office in the Legislative Assembly for ACT, Feb.- May 2018.
- *Travel towards Active Ageing: Obstacles and Opportunities for Seniors in Active Travel and Public Transport in ACT*. Qualitative (thematic analysis) policy research on seniors' mobility issues in ACT.

Teaching and training experience
- *Digital Data Analytics and Visualisation G (11937),* Cai, X. (2024). Master of Communication, School of Arts and Communication, Semester 2 2024. Unit Convenor.

- *Digital Data Analytics and Visualisation G (11937),* O'Neil, M., Cai, X. (2023). Master of Communication, School of Arts and Communication, Semester 2 2023. Deputy Unit Convenor, Lecturer and Tutor. Co-designed the unit.

- *History of landscape Design (f2f, 2007 &2008)*. The lecturer (under supervision). School of Civil Engineering and Architecture, Chongqing University of Science and Technology, China.

- *Principles of Urban Planning (f2f, 2007 & 2008)*. The lecturer (under supervision). School of Civil Engineering and Architecture, Chongqing University of Science and Technology, China.

- *General Hospital Architecture Design Studio (f2f, 2006)*. Co-lecturer, School of Architecture and Urban Planning, Chongqing University, China.

Publications
Peer-reviewed journal articles
- O'Neil, M., Khan, I., Holland, K., Cai, X. (2022). Mapping the connections of health professionals to COVID-19 myths and facts in the Australian Twittersphere. *Information, Communication and Society*, DOI: 10.1080/1369118X.2022.2032260.

- O'Neil M, Muselli L, Cai X, Zacchiroli S. (2022) Co-producing industrial public goods on GitHub: Selective firm cooperation, volunteer-employee labour and participation inequality. *New Media & Society*. DOI:10.1177/14614448221090474.

Reports
- Park, S., McGuinness, K., Fisher, C., Lee, J. Y., McCallum, K., Cai, X., ... & Yao, S. (2024). *Digital News Report: Australia 2024*. News Media Research Centre, University of Canberra.

- Park, S., McGuinness, K., Fisher, C., Lee, J. Y., McCallum, K., Cai, X., ... & Yao, S. (2023). *Digital News Report: Australia 2023*. News Media Research Centre, University of Canberra.

- O'Neil, M., Cai, X., Muselli, L., Pailler, F., Zacchiroli, S. (2021) *The coproduction of open source software by volunteers and big tech firms*. News and Media Research Centre.

In-Progress Manuscripts
- Cai, X., O'Neil, M., Zacchiroli S. University Rents Enabling Corporate Innovation: Mapping Academic Researcher Labour in the R Language Ecosystem.
- Cai, X., O'Neil, M. Does multidisciplinary Collaboration Really Exist in the Studies of Smart City? A Bibliometrics Analysis.
- O'Neil, M., Holland, K., Cai, X. The social construction of mental health on Australian social media.

Conferences
- Cai, X. (2025). Negotiating the Boundary of Openness in the context of Open Government: Mapping the Controversies Surrounding Open Government Data Intermediaries through a Case Study in Australia. *IAMCR 2025*, the International Association for Media and Communication Research, 13 to 17 July 2025, Singapore.

- Cai, X., O'Neil, M., Zacchiroli S. (2024). The Challenges of Researcher Labour in Social Coding Platforms*, the 74th Annual Conference of the International Communication Association*, the International Communication Association, 20-24 June, Gold Coast, Australia.

- Cai, X., O'Neil, M., Zacchiroli S. (2023). *R*esearcher contributions to R packages development: Evidence from GitHub, *The Australian Social Network Analysis Conference 2023,* the Australian Network for Social Network Analysis (ANSNA), 27-28 November, Sydney.

- Cai, X. (2022). Online Collaboration and Discussion on Open Source Smart Cities in Australia, *The International Sunbelt Social Networks Conference 2022*, the International Network for Social Network Analysis, Cairns, 12-16 July.

- O'Neil, M., Cai, X., Zacchiroli S. (2022). The political economy of researcher contributions to free software innovation, *The International Sunbelt Social Networks Conference 2022*, the International Network for Social Network Analysis, Cairns, 12-16 July.

- O'Neil, M., Khan, I., Holland, K., Cai, X. (2022). The spread of COVID-19 misinformation amongst Australian health professionals, *The International Sunbelt Social Networks Conference 2022, International Network for Social Network Analysis*, Cairns, 12-16 July.

Seminars & workshops

- O'Neil, M., Cai, X. (2024). Digital commons for the ecological transition, *The N&MRC Seminar*, University of Canberra, 21 February 2024.

- O'Neil, M., Cai, X. (2022). Towards recognition for the digital commons: Mapping researcher contributions to software innovation, *Sociology Seminar series,* School of Sociology, the National University of Australia, 15 August.

- *Data collection and text analysis with Netlytic Workshop & Tutorial,* Cai, X., Lee, J. (2022)., News & Media Research Centre, University of Canberra, 4 October 2022.

- *Mapping your Bibliography: Peer-to-peer learning (f2f, March 2022, FAD HDR training session)*. Compared EndNote and its open source alternatives and introduced several literature searching tools, University of Canberra.

- *Online research methods (via Zoom, March 2020, N&MRC HDR/ECR training sessions)*. Designed, prepared datasets, and delivered training sessions on conducting online research with R, University of Canberra.

Peer reviews

- 1 review for 1 publication (2024), New Media & Society
- 2 reviews for 1 publication (2023), New Media & Society

Travel Awards & Seed Funding

- Faculty of Arts and Design, University of Canberra (2022) Competitive travel funding awarded for *Sunbelt 2022*, the first international in-person conference on social network analysis post-COVID.

- News & Media Research Centre, University of Canberra (2023–2025) Annual HDR Seed Funding (AU$1000/year) to support conference participation and research dissemination.

Skills

- **Quantitative skills**: intermediate skills in survey design with Qualtrics and Lime Survey, basic skills of statistical analysis with R and Stata.

- **Online research skills**: intermediate skills in social network analysis, text mining and online data collection (via APIs and web scraping) with R.

- **Spatial analysis skills**: intermediate skills in spatial statistical analysis, mapping and service catchment analysis with ArcGIS. Basic skills of spatial analysis with R.

- **Qualitative skills**: basic skills in respondents recruiting, interviews and intermediate skills in data analysis with Atlas.

- **Visual communication skills:** excellent visualization skills with diverse tools to convert data into readable tables and diagrams suitable for datasets and audiences.

Community services

- Co-organized the R-Ladies Canberra event "Creative coding: make generative art with R", 4th June 2024, University of Canberra.

- HDR representative of Faculty of Arts and Design, University of Canberra, 2023

- HDR representative in e-Research Committee, University of Canberra, 2022-2023.

- Initiated the Methods Reading Group in 2022 in FAD at the University of Canberra and led the group from 2022 to 2023.

Prior academic: urban planning

Senior Urban Planner & Project Manager, Guangzhou Urban Planning & Design Survey Institute, China, Jun. 2008-Jan. 2016.

- Designed and led/co-led 53 projects, including social infrastructure planning, urban renewal plans, rezoning, underground space planning and land use change justification reports.
- 5 projects were rewarded:

  · *Conservation Plan for Chayang Town*, 2013 3rd Prize of Urban Planning, Guangzhou Urban Planning Association, participated.
  · *Underground space planning for Kunshan*, 2013 3rd Prize of Urban Planning, Guangzhou Urban Planning Association, main planner.
  · *Underground space planning for urban areas in Fuzhou*, 2013 Provincial 3rd Prize of Urban Planning, Fujian Province Urban Planning Association, participated.
  · *Strategic Master Plan for Yunan County in Guangdong Province*, 2011 2nd Prize of Urban Planning, Guangzhou Urban Planning Association, participated.
  · *Feasibility Study Report of Hekou Street Development*, 2010 Provincial 3rd Prize of Engineering Consulting, Guangdong Engineering Consultants Association, leading planner.

- Awarded planner

  · *Annual Urban Planner*, Urban Planning Bureau of Guangzhou, 2013 and 2014.