

LIANG CAI

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PROFILE

Research Interest	Urban/Rural Sociology, Activity Space Crime Geography Aging
Skills	GIS, Remote Sensing, and Spatial Analysis Quantitative and Computational Methods Visualization
Softwares	Python, R, Stata, L ^A T _E X, Github ArcGIS, GeoDa, and QGIS
Background	Chinese Mandarin/Wu (Native) 中文名：蔡樑

Links

 [Google Scholar](#)  [ORCID](#)  [Person-dex](#)

EDUCATION

The University of Chicago Chicago, IL
Committee: Drs. Kathleen Cagney, Luc Anselin, Christopher Browning **2019 - 2025**

- Ph.D. in Sociology
Dissertation: Social Interaction and Activity Space in Urban and Rural America
 - ICPSR Summer Program, University of Michigan (2022)
 - Certificate in Computational Social Sciences (2022)
 - Certificate in Advanced Quantitative Methods (2021)

- M.A. in Social Sciences (2018)

Utrecht University Utrecht, The Netherlands
Advisor: Dr. Stijn Ruiter **2017**

- M.Sc. in Sociology and Social Research

Nanjing University Nanjing, China
Graduate with Distinction **2015**

- B.A. in Social Work

EMPLOYMENT

Vulnerability Mapping Using Big Data *The World Bank*
Social Development Consultant | Part-time

Constructed and mapped vulnerability index using publicly-available remote sensing and crowd-sourced big data for under-developed countries to inform targeting strategies and policy interventions.

Activity Space in Real-Time
Graduate Research Assistant | Part-time

National Opinion Research Center (NORC), Chicago, IL
2019 - present

Data cleaning, analysis, and research paper drafting on activity space projects in urban and rural America (CHART, GSMS, and RAISE).

TEACHING EXPERIENCE

G: Grad | M: Mixed | U: Undergrad

M Intro to Spatial Data Science (Dr. Luc Anselin)	Autumn, 2020 & 2021
M Intro to GIS and Spatial Analysis (Dr. Marynia Kolak)	Spring, 2021
M Statistical Methods of Research (Dr. Ross Stolzenberg)	Winter, 2022
G Police Reform Policy Lab (Dr. Santiago Tobon)	Spring, 2022
G Int'l Dev. Policy Lab (Dr. Rebecca Wolfe)	Winter & Spring, 2023
	Winter, 2024

PUBLICATION & PRESENTATION

PEER REVIEWED ARTICLES

*Co-First Author

Published (R&R incl.)

- [12] Goldman, A. W., **Cai, L.**, & Browning C. R. (R&R). No Place Like Home? Local Crime and Older Adults' Mobility. *Social Problems*.
- [11] Zhang, Y., **Cai, L.**, Song, G., & You, Y. (2024). [Causal Effect of Small Businesses on Street Theft: Evidence from a Natural Experiment of the Beijing Cleanup Campaign](#). *Journal of Quantitative Criminology*.
- [10] **Cai, L.**, Song, G., & Zhang, Y. (2024). [Understanding Neighborhood Income Segregation Around the Clock Using Mobile Phone Ambient Population Data](#). *Humanities and Social Sciences Communications*.
- [9] **Cai, L.**, Browning, C. R., & Cagney, K. A. (2024). [Exposure of Neighborhood Racial and Socio-Economic Composition in Activity Space: A New Approach Adjusting for Residential Conditions](#). *Social Forces*.
- [8] Kwiatek, S. M., **Cai, L.**, Cagney, K. A., Copeland, W. E., Hotz, V. J., & Hoyle, R. H. (2024). [Comparative Assessment of the Feasibility and Validity of Daily Activity Space in Urban and Non-Urban Settings](#). *PLoS ONE*.
- [7] Zhang, Y., **Cai, L.**, Song, G., & Zhu, C. (2023). [The Long-Term Theft Prediction in Beijing Using Machine Learning Algorithms: Comparison and Interpretation](#). *Crime and Delinquency*.
- [6] Song, G., **Cai, L.**, Xiao, L., Liu, L., & Wu, Y., Yue, H. (2023). [Effects of Ambient Population with Different Income Levels on the Spatio-Temporal Pattern of Theft: A Study Based on Mobile Phone Big Data](#). *Cities*.

- [5] **Cai, L.**, Cagney, K. A., Browning, C. R., & York Cornwell, E. (2022). [How to Analyze GPS/Location Data](#). *Sage Research Methods: Doing Research Online*.
- [4] Zhang, Y., **Cai, L.**, Song, G., Liu, L. & Zhu, C. (2022). [From Residential Neighborhood to Activity Space: The Effects of Educational Segregation on Crime and Their Moderation by Social Context](#). *Annals of American Association of Geographers*.
- [3] Song, G., Zhang, Y., Bernasco, W., **Cai, L.**, Liu, L., Qin, B., & Chen, P. (2021). [Residents, Employees and Visitors: Effects of Three Types of Ambient Population on Theft on Weekdays and Weekends in Beijing, China](#). *Journal of Quantitative Criminology*.
- [2] Cagney, K. A., York Cornwell, E., Goldman, A. W., & **Cai, L.** (2020). [Urban Mobility and Activity Space](#). *Annual Review of Sociology*.
- [1] Song, G., Liu, L., He, S., & **Cai, L.** (2020). [Safety Perceptions among African Migrants in Guangzhou and Foshan, China](#). *Cities*.

Manuscript

- Song, G., Fan, Z., **Cai, L.**, & Zhang, Y. (2024). Quantity or Spatial Coverage? Using Interpretable Machine Learning to Evaluate the Relationship between Spatial Strategy of Police Stops and Crime in Crime Hotspots and Non-hotspots. Under Review.
- Kwiatk, S. M., **Cai, L.**, Brann, P., Cagney, K. A., Copeland, W. E., Hotz, V. J., & Hoyle, R. H., (2024). Rurality: A Comparison of Geographic Classifications and People's Perceptions. Under Review.
- Zhang, Y.*, **Cai, L.***, & Zhu, C. (2024). Understanding Suicidal Ideation in China: Nationwide Distribution, Social Determinants and Geographic Variations. Under Review.
- Cai, L.**, Browning, C. R., & Anselin, L. (2024). The Social Context of Spatial Choice: Activity Space Locations and Residential Segregation. In Preparation.
- Cai, L.**, Song, G., & Zhang, Y. (2024). Going with the Flow: Which Flow? Effects of Daily Mobility Flows with Different Trip Purposes on Burglars' Location Choice. In Preparation.
- Cai, L.** et al. (2024). Police Killing & Activity Space. In Preparation.
- Zhang, Y., **Cai, L.**, & Zhu, C. (2024). Social Disorder and Spatial Inequality from Street View Images. In Preparation.

REPORTS

- Cuesta, J., **Cai, L.**, Madrigal, L., & Recorari, N. (2023). [Exposure to Climatic Risks and Social Sustainability in Vietnam](#). *Sustainability*.
- Aguilera, A. I. & **Cai, L.** (2022). Social Vulnerability to Climate Change. The World Bank.
- Sacks, A., Vemuru. V., **Cai, L.**, Ilukor, J., Michael, M., & Sanchez, E. (2020). Using Big Data to Inform the Response to Vulnerability in Uganda's Settlements and Host Communities. The World Bank.
- Sacks, A., Fuchs, A., Cancho, C., **Cai, L.**, & Sanchez, E. (2019). Big Data and Vulnerability Mapping: Regional Development and Vulnerability in Azerbaijan (Report No. AUS0000762). The World Bank.

PRESENTATIONS

- Cai, L.** (2024). Rethinking Rurality: Evidence from GPS Location Tracking in North Carolina.
- *Annual Meeting of Population Association of America* (PAA @CMH)
- Cai, L.** (2024). The Social Context of Spatial Choice: Activity Space and Residential Segregation.
- *Spatial, Computational, and Real-time Analytic Methods workshop* (SCRAM @Zoom)
- *Annual Meeting of Population Association of America* (PAA Poster @CMH)
- Cai, L.** Neighborhood Segregation Around the Clock Using Mobile Phone Ambient Population Data
- *Annual Meeting of Population Association of America* (PAA @MSY, 2023)
- *International Doctoral Symposium* (HKBU @HKG, 2024)
- Cai, L.** (2022). Homing in: Methodological Challenges in Assessing Time at Home Using GPS Data.
- *Spatial, Computational, and Real-time Analytic Methods workshop* (SCRAM @Zoom)
- Kwiatk, S., & **Cai, L.** (2022). Feasibility & Reliability of Activity Space Research in Rural Settings.
- *Collaborative for Innovation in Data & Measurement in Aging* (CIDMA @ORD)
- Cagney, K. A. & **Cai, L.** (2021). Activity Space, Social Interaction and Health in Later Life.
- *Quant. Research Methods in Edu., Health, and Soc. Sci. workshop* (QMEHSS @Zoom)
- Cai, L.**, Browning, C., & Cagney, K. A. Detecting Racial Segregation in Activity Space: New Measures Adjusting for Residential Segregation.
- *Collaborative for Innovation in Data & Measurement in Aging* (CIDMA @ORD, 2022)
- *Mobile Apps and Sensors in Surveys workshop* (MASS @MAN, 2023)
- Cai, L.** (2019). Active Streets and Crime Revisited: Understanding Crime Opportunities and Monitoring Eyes in the Public Space with Chicago Streets.
- *Annual Meeting of Environmental Criminology and Crime Analysis* (ECCA @CAN)
- *Annual Meeting of American Society of Criminology* (ASC @SFO)
- Cai, L.** & Ruiter, S. (2017). Victimization in Context.
- *International Conference on Crime Geography and Crime Analysis* (CGCA @CAN)

HONORS AND AWARDS

The University of Chicago

- Henderson Research Fund (\$4,195): Department of Sociology, 2024 - 2025
- Travel Stipend (\$1,200): Center on Healthy Aging Behaviors and Longitudinal InvestigationS (CHABLIS), 2024
- Urban Doctoral Fellow (\$1,000): Mansueto Institute for Urban Innovation, 2020 - 2021
- Research Travel Grant (\$750): Graduate Council, 2019, 2023, 2024
- Social Science Fellowship: Department of Sociology, 2019 - 2025
- Johnson Prize for Best MA thesis (nomination), 2018

- Social Science Scholarship, 2017 - 2018

Utrecht University & Nanjing University

- Holland Scholarship, 2015
- National Student Innovation Grant: Chinese Ministry of Education, 2014 - 2015
- University Scholarships, 2012 - 2015

MEMBERSHIP, SERVICES, AND EXTRACURRICULAR ACTIVITIES

Professional Membership

- Population Association of America (PAA)
- American Sociological Association (ASA)
- American Society of Criminology (ASC)

Peer Review

- American Journal of Sociology (n = 2)
- Social Problems (n = 1)
- Journal of Criminal Justice (n = 1)

Social Work

- Nanjing Suojincun Nursing Home (end-of-life care, 2012)
- Nanjing Children's Welfare Institute (2014)

Other Services

- Judge for Goffman Prize for BA Thesis, UChicago