YUE LIN

Assistant Professor
Department of Geography and Geographic Information Science
University of Illinois Urbana-Champaign
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EDUCATION

2023	**Ph.D., Geography**
	The Ohio State University, Columbus, OH
	Graduate Certificate in College and University Teaching
2022	**M.A., Geography**
	The Ohio State University, Columbus, OH
2019	**B.S., Geographic Information Science**
	Wuhan University, Wuhan, China

ACADEMIC EMPLOYMENT

Main Appointments

2025–present	Assistant Professor, Department of Geography and Geographic Information Science, University of Illinois Urbana-Champaign
2023–2025	Assistant Instructional Professor, Center for Spatial Data Science, University of Chicago

Other Appointments

2024–2028	Board of Director, Cartography and Geographic Information Society

RESEARCH AND TEACHING INTERESTS

Geographic Information Science, Computational Spatial Science, Social Justice, Location Privacy

PUBLICATIONS (MENTEE)

Refereed Journal Articles

2025	**Lin, Y.**, Bae, C., & Talen, E. How would AI define neighborhood boundaries? A comparison with human-crowdsourced data. *Environment and Planning B: Urban Analytics and City Science*, In Press.
2025	**Lin, Y.** & Zhao, B. Posthuman cartography? Rethinking artificial intelligence, cartographic practices, and reflexivity. *Annals of the American Association of Geographers*, 115(3), 499–512.
2025	**Lin, Y.**, Robinson, C., Yeap, Q.F., & Michael, H. Optimizing air pollution sensing for social and environmental justice. *Applied Geography*, 178, 103606.
2025	Xiao, N., Kim, M.J., & **Lin, Y.** A multistart and recombination algorithm for finding many unique solutions to spatial aggregation problems. *Geoinformatica*, 29, 53–91.

2025	**Lin, Y.** & Grekousis, G. Can geodemographic clustering be fair? Incorporating social fairness in crisp and fuzzy approaches through a unified framework. *International Journal of Geographical Information Science*, 39(6), 1270–1295.
2024	**Lin, Y.** You are where you live? Evaluating the racial and ethnic (mis)representation in geodemographic classification. *Applied Geography*, 165, 103244.
2024	**Lin, Y.** Moving beyond anonymity: Embracing a collective approach to location privacy in data-intensive geospatial analytics. *Environment and Planning F*, 3(1-2), 45–63.
2024	**Lin, Y.** & Xiao, N. Exploring the tradeoff between privacy and utility of complete-count census data using a multiobjective optimization approach. *Geographical Analysis*, 56(3), 427–450.
2024	**Lin, Y.** Synthetic population data for small area estimation in the United States. *Environment and Planning B: Urban Analytics and City Science*, 51(2), 553–562. [data]
2023	**Lin, Y.** & Xiao, N. Generating small areal synthetic microdata from public aggregated data using an optimization method. *The Professional Geographer*, 75(6), 905–915.
2023	**Lin, Y.** Geo-indistinguishable masking: Enhancing privacy protection in spatial point mapping. *Cartography and Geographic Information Science*, 50(6), 608–623.
2023	**Lin, Y.** & Xiao, N. Assessing the impact of differential privacy on population uniques in geographically aggregated data: The case of the 2020 U.S. Census. *Population Research and Policy Review*, 42(5), 81.
2023	**Lin, Y.** & Xiao, N. A computational framework for preserving privacy and maintaining utility of geographically aggregated data: A stochastic spatial optimization approach. *Annals of the American Association of Geographers*, 113(5), 1035–1056.
2023	**Lin, Y.**, Li, J., Porr, A., Logan, G., Xiao, N. & Miller, H. Creating building-level, three-dimensional digital models of historic urban neighborhoods from Sanborn Fire Insurance maps using machine learning. *PLoS ONE*, 18(6), e0286340.
2023	**Lin, Y.**, Xu, C., & Wang, J. sandwichr: Spatial prediction in R based on spatial stratified heterogeneity. *Transactions in GIS*, 27(5), 1579–1598. [R package]
2022	**Lin, Y.** & Xiao, N. Identifying high accuracy regions in traffic camera images to enhance the estimation of road traffic metrics: A quadtree-based method. *Transportation Research Record*, 2676(12), 522–534.
2021	Zhang, X., **Lin, Y.**, Cheng, C., & Li, J. Determinant powers of socioeconomic factors and their interactive impacts on particulate matter pollution in North China. *International Journal of Environmental Research and Public Health*, 18(12), 6261.
2021	**Lin, Y.**, Kang, M., & He, B. Spatial pattern analysis of address quality: A study on the impact of rapid urban expansion in China. *Environment and Planning B: Urban Analytics and City Science*, 48(4), 724–740.
2020	**Lin, Y.**, Kang, M., Wu, Y., Du, Q., & Liu, T. A deep learning architecture for semantic address matching. *International Journal of Geographical Information Science*, 34(3), 559–576.
2020	**Lin, Y.**, Wang, J., & Xu, C. Theoretical and empirical comparative evaluations on measures of map association. *Journal of Geographical Systems*, 22, 361–390.
2019	**Lin, Y.**, Cai, Y., Gong, Y., Kang, M., & Li, L. Extracting urban landmarks from geographical datasets using a random forests classifier. *International Journal of Geographical Information Science*, 33(12), 2406–2423.

Refereed Conference Proceedings

2025	Otto, P. & **Lin, Y.** The Roaring '20s Project: Mapping pre-renewal built environments in Chicago from Sanborn Fire Insurance maps using a computational workflow. *32nd International Cartographic Conference (ICC 2025)*, August 16–22, Vancouver, CA.

2024	**Lin, Y.** A multi-objective optimization approach to balancing utility and equity in location-allocation problems. *CaGIS-UCGIS 2024 Symposium*, June 3–6, Columbus, OH.
2023	**Lin, Y.** & Xiao, N. Investigating MAUP effects on census data using approximately equal-population aggregations. *12th International Conference on Geographic Information Science (GIScience 2023)*, September 12–15, Leeds, UK.
2022	**Lin, Y.** & Xiao, N. Developing synthetic individual-level population datasets: The case of contextualizing maps of privacy-preserving census data. *AutoCarto 2022*, November 2–4, Redlands, CA.

Book Chapters

2025	**Lin, Y.** & Kim, J. Pillars of GeoAI in human geography. In Huang, X., Wang, S., Wilson, J., & Kedron, P. (Eds.), *GeoAI and Human Geography - The Dawn of a New Spatial Intelligence Era*. Springer.

In Submission

[1]	**Lin, Y.**, Yeap, Q.F., Zhang, H. Citizen science and geoprivacy: Empirical analysis of location masking in crowdsensing networks.
[2]	Otto, P. & **Lin, Y.** The Roaring '20s Project: Mapping pre-renewal built environments in Chicago from Sanborn Fire Insurance maps.
[3]	Zhao, B. & **Lin, Y.** GeoAI collapse? Ethical implications of synthetic geospatial data use.

AWARDS AND HONORS

External

2025	Third Place (Team: Roof Mappers), I-GUIDE Spatial AI Challenge 2024-25, *Institute for Geospatial Understanding through an Integrative Discovery Environment (I-GUIDE)*
2024	ICA Scholarship (CaGIS-UCGIS 2024 Symposium), *International Cartographic Association*
2024	Honorable Mention, William L. Garrison Award for Best Dissertation in Computational Geography, *American Association of Geographers*
2023	CaGIS Doctoral Student Scholarship Award, *Cartography and Geographic Information Society*
2023	IJGI Travel Award, *ISPRS International Journal of Geo-Information*
2023	Grad WINGS (Women+ in Geospatial Science) Fellow, Training and Retaining Leaders in STEM - Geospatial Sciences (TRELIS-GS) Program, *University Consortium of Geographic Information Science*
2022	Third Place Doctoral Student Paper Award, *East Lakes Division of the American Association of Geographers*
2022	ICA Scholarship (AutoCarto 2022), *International Cartographic Association*
2022	Third Place Student Lightening Talks Award, *University Consortium for Geographic Information Science*
2022	Student Travel Award, *Spatial Analytics and Modeling Specialty Group, American Association of Geographers*
2021	First Place Doctoral Student Paper Award, *East Lakes Division of the American Association of Geographers*
2021	First Place Student Paper Award, *University Consortium for Geographic Information Science*

2021	First Place Award, AAG Robert Raskin Student Competition, *Cyberinfrastructure Specialty Group, American Association of Geographers*
2020	AAG Kauffman Runner-Up Award for Best Student Paper in Geography & Entrepreneurship, *American Association of Geographers*

Internal

2023	E. Willard and Ruby S. Miller Award, *The Ohio State University*
2022	Career Development Grant Award, *Council of Graduate Students, The Ohio State University*
2022	Fenburr Travel Scholarship for Outstanding PhD Student, *The Ohio State University*
2019	Outstanding Bachelor's Thesis Award, *Wuhan University*
2019	Outstanding Graduate Award, *Wuhan University*
2018	Wang Zhizhuo Innovative Talent Scholarship (First Class), *Wuhan University*
2017	Zhonghaida Scholarship (First Class), *Wuhan University*
2016–2018	Outstanding Student Award, *Wuhan University*
2016	Second Class Scholarship, *Wuhan University*

GRANTS

2025–2026	Fooling ourselves less with AI? Exploring AI-assisted scientific reasoning with students to improve, not diminish, their reasoning skills in final projects. *AI Initiative: Teaching and Learning Seed Grant, University of Chicago*, $9,540. Role: Co-PI (with PI: Jean Clipperton; Co-PIs: Julia Koschinsky, Sabrina Nardin, Zhao Wang, Henry K. Dambanemuya, Jon Clindaniel, Ali Sanaei, Iris Clever).
2023–2025	*Experiential Learning Grant, Chicago Studies, University of Chicago*, $7,000. Role: PI.
2022	Location privacy and confidentiality: Towards ethical geospatial big data harnessing. *UCGIS I-GUIDE Community Champions Program, University Consortium for Geographic Information Science*, $3,000. Role: PI.
2020–2021	Human mobility: Understanding the impact of COVID-19 and its social and economic contexts in Columbus, OH using traffic camera feeds. *National Science Foundation Geospatial Fellows Program, University of Illinois at Urbana-Champaign*, $2,400. Role: Key personnel (with PI: Ningchuan Xiao).

PRESENTATIONS (✝ PRESENTING AUTHOR)

Conference and Workshop Organization

2025	Chair, Spatial data science and GeoAI ethics: Bridging research and education. *The 2025 Annual Meeting of the American Association of Geographers*, March 24–28, Detroit, MI.
2024	Program Committee, *CaGIS-UCGIS 2024 Symposium*, June 3–6, Columbus, OH.
2024	Co-chair, Responsible GeoAI: Privacy, fairness, and interpretability in spatial data science. *The 2024 Annual Meeting of the American Association of Geographers*, April 16–20, Honolulu, HI.
2022	Co-chair, AAG 2022 Summer Series Graduate Forums, *American Association of Geographers*, June 14–August 9, virtual.

Invited Talks

2025	Posthuman cartography? Rethinking artificial intelligence, cartographic practices, and reflexivity. *UCGIS Webinar Series*, May 15, virtual.
2024	Reexamining geoprivacy: From anonymity to a harm-based approach. *I-GUIDE Virtual Consulting Office Webinar Series, University of Illinois at Urbana-Champaign*, June 19, virtual.
2023	Privacy and utility of geographic data: Revealing, evaluating, and mitigating the externalities of geographic privacy protection. *Shijian Forum, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences*, August 10, Beijing, China.

Papers Presented at Professional Meetings

2025	Lin, Y.,[‡] Zhao, B. Posthuman cartography? Rethinking artificial intelligence, cartographic practices, and reflexivity. *2025 North American Cartographic Information Society (NACIS) Annual Meeting*, October 14–18, Louisville, KY.
2025	Otto, P.,[‡] Lin, Y. The Roaring '20s Project: Mapping pre-renewal built environments in Chicago from Sanborn Fire Insurance maps using a computational workflow. *32nd International Cartographic Conference (ICC 2025)*, August 16–22, Vancouver, CA.
2025	Lin, Y.[‡] You are where you live? Evaluating the racial and ethnic (mis)representation in geodemographic classification. *The 2025 Annual Meeting of the American Association of Geographers*, March 24–28, Detroit, MI.
2024	Lin, Y.[‡] Geo-indistinguishable masking: Enhancing privacy protection in spatial point mapping. *The 5th Spatial Data Science Symposium*, October 23–24, virtual.
2024	Lin, Y.[‡] A multi-objective optimization approach to balancing utility and equity in location-allocation problems. *CaGIS-UCGIS 2024 Symposium*, June 3–6, Columbus, OH.
2024	Lin, Y.[‡] Geo-indistinguishable masking: Enhancing privacy protection in spatial point mapping. *The 2024 Annual Meeting of the American Association of Geographers*, April 16–20, Honolulu, HI.
2023	Lin, Y. & Xiao, N.[‡] Investigating MAUP effects on census data using approximately equal-population aggregations. *12th International Conference on Geographic Information Science (GIScience 2023)*, September 12–15, Leeds, UK.
2023	Lin, Y.[‡] & Xiao, N. Exploring the tradeoff between privacy and utility of geographic data using a multiobjective optimization approach. *The 2023 Annual Meeting of the American Association of Geographers*, March 23–27, Denver, CO.
2023	Lin, Y., Li, J., Porr, A., Logan, G., Xiao, N. & Miller, H.[‡] Creating high resolution, three-dimensional digital models of historic urban neighborhoods from Sanborn Fire Insurance maps using machine learning. *The 2023 Annual Meeting of the American Association of Geographers*, March 23–27, Denver, CO.
2022	Lin, Y.[‡] & Xiao, N. Developing synthetic individual-level population datasets: The case of contextualizing maps of privacy-preserving census data. *AutoCarto 2022, The 24th International Research Symposium on Cartography and GIScience*, November 2–4, Redlands, CA.
2022	Lin, Y.[‡] & Xiao, N. Exploring tradeoffs between privacy and utility of geographic data using a multiobjective optimization approach. *The 2022 Annual Meeting of the East Lakes Division of the American Association of Geographers*, October 27–28, Muskegon, MI.
2022	Lin, Y.[‡] & Xiao, N. Spatial optimization for protecting privacy and preserving utility of geographically aggregated data. *UCGIS Symposium 2022: GIScience Forward: Meeting the Challenge*, June 7–9, Syracuse, NY.
2022	Lin, Y.[‡] & Xiao, N. Examining threats to location privacy in geographically aggregated data with the protection of differential privacy. *The 2022 Annual Meeting of the American Association of Geographers*, February 25–March 1, virtual.

2021   Lin, Y.[‡], Xu, C., & Wang, J. Sandwich: An R package for spatial interpolation based on spatial stratified heterogeneity. *The 2021 Joint Annual Meeting of Applied Geography Conference/East Lakes AAG/West Lakes AAG*, October 14–16, virtual.

2021   Lin, Y.[‡] & Xiao, N. Traffic density estimation from camera feeds using deep learning and high accuracy regions. *UCGIS Symposium 2021: Advancing GIScience-informed Policy Solutions*, June 7–11, virtual.

2021   Lin, Y.[‡] & Xiao, N. Using deep learning and high accuracy regions for vehicle detection and traffic density estimation from traffic camera feeds. *The 2021 Annual Meeting of the American Association of Geographers*, April 7–11, virtual.

2021   Lin, Y.[‡], Kang, M., Wu, Y., Du, Q., & Liu, T. A deep learning architecture for semantic address matching. *The 2021 Annual Meeting of the American Association of Geographers*, April 7–11, virtual.

2020   Lin, Y.[‡], Cai, Y., Gong, Y., Kang, M., & Li, L. Extracting urban landmarks from geographical datasets using a random forests classifier. *Symposium on AI and Social Good, Carnegie Mellon University*, April 23–24, virtual.

Panel Speaker

2025   AAG 2025 Symposium on Spatial AI & Data Science for Sustainability: Grand Challenges of Spatial AI and Data Science. *The 2025 Annual Meeting of the American Association of Geographers*, March 24–28, Detroit, MI.

Campus and Departmental Talks

2023   Lin, Y.[‡]. Responsible spatial data science: Privacy and fairness in data and algorithms. *GIS Day, University of Chicago*, November 15, Chicago, IL.

2023   Lin, Y.[‡], Li, J., Porr, A., Logan, G., Xiao, N. & Miller, H. Creating building-level, three-dimensional digital models of historic urban neighborhoods from Sanborn Fire Insurance maps using machine learning. *Center for Spatial Data Science, University of Chicago*, November 13, Chicago, IL.

2023   Lin, Y.[‡] Privacy and utility of geographic data. *Graduate Colloquium, The Ohio State University*, January 20, Columbus, OH.

2022   Lin, Y.[‡] Exploring tradeoffs between privacy and utility of geographic data. *GeoWeek, The Ohio State University*, November 14, Columbus, OH.

2022   Lin, Y.[‡] Navigating tradeoffs between privacy and utility in geographic data releases. *Geography Grad Students' Reports from the Field, The Ohio State University*, September 23, Columbus, OH.

2021   Lin, Y.[‡] & Xiao, N. Does differential privacy protect location privacy in geographically aggregated data publication? *3C GIS Day(s), The Ohio State University*, November 15–19, virtual.

2020   Lin, Y.[‡] & Xiao, N. Traffic density estimation from camera feeds: An approach using deep learning and high accuracy regions. *GeoWeek, The Ohio State University*, November 16, virtual.

2020   Lin, Y.[‡], Cai, Y., Gong, Y., Kang, M., & Li, L. Extracting urban landmarks from geographical datasets using a random forests classifier. *Geography Visit Day, The Ohio State University*, March 20, virtual.

Poster Presentations

2024   Mostafavisabet, M.[‡], Tokey, A., Alam, M., Lin, Y., Xiao N., & Miller, H. 3D urban modeling of historic Black neighborhoods using GIS and machine learning: Poindexter Village, Columbus, in 1940. *CaGIS-UCGIS 2024 Symposium*, June 3–6, Columbus, OH.

2023	Lin, Y.[‡] & Xiao, N. Exploring tradeoffs between privacy and utility of geographic data using a multiobjective optimization approach. *The 37th Edward F. Hayes Advanced Research Forum, The Ohio State University*, February 24, Columbus, OH.
2022	Lin, Y.[‡] & Xiao, N. Generating small area synthetic microdata for public use: Towards accessible and reproducible spatial data science. *2022 Interdisciplinary Research Fall Forum, The Ohio State University*, November 7–9, Columbus, OH.
2022	Lin, Y.[‡], Li, J., Porr, A., Logan, G., Xiao, N. & Miller, H. Ghost neighborhoods of Columbus: Reconstructing historical neighborhoods from Sanborn maps using machine learning. *2022 Interdisciplinary Research Fall Forum, The Ohio State University*, November 7–9, Columbus, OH.
2022	Lin, Y.[‡] & Xiao, N. A stochastic spatial optimization approach to privacy and utility of geographically aggregated data. *UCGIS Symposium 2022: GIScience Forward: Meeting the Challenge*, June 7–9, Syracuse, NY.

MEDIA COVERAGE

2023	3D digital models are resurrecting lost neighborhoods. *Axios*. June 28.
2023	Turning old maps into 3D digital models of lost neighborhoods. *Ohio State News*. June 28.
2022	Lost Columbus communities reborn with Ghost Neighborhoods project. *The Lantern*. November 22.
2022	Recreating "ghost neighborhoods" destroyed by highways: Ohio State researchers studying impact on vulnerable communities. *Ohio State News*. September 15.

OUTREACH

2024	Mapping Chicago's Past and Present. *Chicago History Museum*. May 11.

TEACHING

University of Illinois Urbana-Champaign

2025–present	GGIS 527: Geospatial Artificial Intelligence & Machine Learning (Autumn 2025)
	GGIS 403: Geographic Information Science and Systems (Spring 2026)

University of Chicago

2023–2025	GISC 28100: Introduction to Geocomputation (Winter 2024, Winter 2025)
	GISC 28300: Topics in Geographic Information Science (Autumn 2023)
	GISC 28400: GIScience Practicum (Spring 2024, Spring 2025)
	GISC 28800: History of Cartography (Winter 2024)
	GISC 25900: Introduction to Location Analysis (Winter 2025)
	GISC 27106: Geospatial Data Science for Urban Applications (Autumn 2024)
	SOCI 20253: Introduction to Spatial Data Science (Summer 2024, Autumn 2024)
	SOSC 13320: Social Science Inquiry: Spatial Analysis III (Spring 2024, Spring 2025)

The Ohio State University

2022	**Instructor of Record**
	GEOG 5201: Geovisualization (Spring 2022)
2019–2021	**Graduate Teaching Associate**
	GEOG 4103: Introductory Spatial Data Analysis (Spring 2021)
	GEOG 5201: Geovisualization (Spring 2020, Autumn 2021)
	GEOG 5222: GIS Algorithms and Programming (Autumn 2019)
	GEOG 5226: Spatial Simulation and Modeling in GIS (Autumn 2020)

MENTORSHIP

Master's Thesis Advisor

| 2024–2025 | Ashlynn Wimer, Computational Social Science, University of Chicago |

Undergraduate Research Advisor

2025	Na Nguyen, Brown University
2025	Enrico Madani, University of Chicago
2024–2025	Qian Fang Yeap, University of Chicago
2024	Helen Michael, University of Texas at Austin
2024	Yassir Atlas, University of Illinois Chicago
2024	Marcus Kuo, University of Chicago

SERVICE

University Service

2024–2025	Faculty Mentor, Data Science Institute Summer Lab Program, *University of Chicago*
2024	Faculty Partner, Summer Institute in Social Research Methods, *University of Chicago*
2020–2021	Ph.D. Representative on Graduate Studies Committee, Graduate Geography Organization, *The Ohio State University*

Professional Service

2025	Mentor, NACIS Mentor Program, *North American Cartographic Information Society*
2023–2024	Mentor, Women+ in Geospatial Mentorship Programme, *Women+ in Geospatial*
2023	Research Mentor, Research Mentoring Sessions, The 2023 Annual Meeting of the American Association of Geographers, *American Association of Geographers*
2022–2023	Education Committee, *University Consortium for Geographic Information Science*
2022	Student Assistant, AutoCarto 2022, The 24th International Research Symposium on Cartography and GIScience, *Cartography and Geographic Information Society*
2021–2022	Award Committee, Graduate Student Affinity Group (GSAG), *American Association of Geographers*

Reviewer

Journals: Annals of the American Association of Geographers (2), Annals of GIS (1), Cartography and Geographic Information Science (3), China Population and Development Studies (1), Environment and Planning B: Urban Analytics and City Science (1), Geographical Analysis (1), GeoHealth (1), Geo-spatial

Information Science (1), ISPRS International Journal of Geo-Information (5), International Journal of Digital Earth (1), International Journal of Geographical Information Science (1), Journal of Spatial Information Science (1), Journal of Spatial Science (1), Scientific Data (1), The Professional Geographer (3), Transactions in GIS (3), Urban Informatics (1)

Conferences: GIScience (2023), CaGIS-UCGIS Symposium (2024)

Professional Memberships

American Association of Geographers
Cartography and Geographic Information Society
North American Cartographic Information Society

SKILLS

Programming languages: Python, R, C/C++, NetLogo
Geospatial software: ArcGIS Pro, ArcGIS CityEngine, QGIS, GeoDa