

# Ganmin Yin

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## EDUCATION

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**Peking University** 2020.09 – 2025.07

- **Ph.D.** in *Geographical Information Science*
- Supervisor: Prof. [Zhou Huang](#) & Prof. [Yu Liu](#)
- Thesis: Analysis and Application of Low-Carbon Urban Transportation Based on Geospatial Big Data

**Peking University** 2016.09 – 2020.07

- **B.S.** in *Geographical Information Science*
- Supervisor: Prof. [Zhou Huang](#)
- Thesis: Spatial Prediction of Public Transportation Modal Share: A Case Study in Beijing

## EXPERIENCE

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**Postdoctoral Associate** 2025.09 – Present

**Singapore-MIT Alliance for Research and Technology (SMART), MIT**

- Examine urban growth patterns and sustainability using econometrics and causal learning
- Supervisor: Prof. [Siqi Zheng](#), Prof. [Wen-Chi Liao](#), Prof. [Weizeng Sun](#)

**Graduate Research Assistant** 2018.10 – 2025.07

**Spatio-Temporal Social Sensing Lab ( $S^3$ -Lab), Peking University**

- Leverage geospatial big data and social sensing to investigate transportation and urbanization
- Supervisor: Prof. [Zhou Huang](#) & Prof. [Yu Liu](#)

**Visiting Student** 2017.09 – 2017.10

**UC Berkeley, Davis & Santa Barbara**

- Apply remote sensing imagery to analyze drought in northern China
- Supervisor: Prof. [Gregory Biging](#), Prof. [Yufang Jin](#), Prof. [Alan T. Murray](#)

## RESEARCH INTERESTS

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- Urban Transportation & Human Mobility
- Urban Development & Urban Metabolism
- Remote Sensing & Social Sensing
- Geospatial Artificial Intelligence & Its Applications
- Sustainable Development Goals (SDGs)

## PUBLICATIONS

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\*Corresponding author; #Equal contribution

[1] **Yin, G.**, Fu, C., Ren, S., Yan, X., Qi, J., Bao, Y., & Huang, Z.\* (2025). Traffic prediction and road space optimization for the integration of dockless bike-sharing and subway. *Sustainable Cities and Society*, 121, 106162. <https://doi.org/10.1016/j.scs.2025.106162>. (IF=12.0, 3/95)

- [2] **Yin, G.**, Feng, Y., Jiang, Y., & Bao, Y.\* (2024). A Scene-Object-Economy framework for identifying and validating urban-rural fringe using multisource geospatial big data. *Applied Sciences*, 14(22), 10191. <https://doi.org/10.3390/app142210191>. (IF=2.5, 50/175)
- [3] **Yin, G.**, Huang, Z.\*, Fu, C., Ren, S., Bao, Y., & Ma, X. (2024). Examining active travel behavior through explainable machine learning: Insights from Beijing, China. *Transportation Research Part D: Transport and Environment*, 127, 104038. <https://doi.org/10.1016/j.trd.2023.104038>. (IF=7.7, 5/61, ESI Highly Cited Paper)
- [4] **Yin, G.**, Huang, Z.\*, Yang, L., Ben-Elia, E., Xu, L., Scheuer, B., & Liu, Y. (2023). How to quantify the travel ratio of urban public transport at a high spatial resolution? A novel computational framework with geospatial big data. *International Journal of Applied Earth Observation and Geoinformation*, 118, 103245. <https://doi.org/10.1016/j.jag.2023.103245>. (IF=8.6, 5/65)
- [5] Huang, Z., **Yin, G.**, Peng, X.\*, Zhou, X., & Dong, Q. (2023). Quantifying the environmental characteristics influencing the attractiveness of commercial agglomerations with big geo-data. *Environment and Planning B: Urban Analytics and City Science*, 50(9), 2470-2490. <https://doi.org/10.1177/23998083231158370>. (IF=3.1, 27/173, ESI Highly Cited Paper)
- [6] **Yin, G.**, Huang, Z.\*, Bao, Y., Wang, H., Li, L., Ma, X., & Zhang, Y. (2023). ConvGCN-RF: A hybrid learning model for commuting flow prediction considering geographical semantics and neighborhood effects. *GeoInformatica*, 27(2), 137-157. <https://doi.org/10.1007/s10707-022-00467-0>. (IF=2.6, 29/67, Top 1 Most Cited Paper in 2023)
- [7] Bao, Y., Huang, Z.\*, **Yin, G.**, Ren, S., Yan, X., & Qi, J. (2025). Quantifying the impact of building material stock and green infrastructure on urban heat island intensity. *Building and Environment*, 113068. <https://doi.org/10.1016/j.buildenv.2025.113068>. (IF=7.6, 9/183)
- [8] Ren, S., Huang, Z.\*, **Yin, G.**, Yan, X., Dong, Q., Qi, J., Zheng, J., Bao, Y., & Zhang, S. (2025). Spatially-optimized greenspace for more effective urban heat mitigation: Insights from regional cooling heterogeneity via explainable machine learning. *Landscape and Urban Planning*, 256, 105296. <https://doi.org/10.1016/j.landurbplan.2025.105296>. (IF=9.2, 2/173)
- [9] Bao, Y., Du, H., Huang, Z.\*, Ren, S., **Yin, G.**, & Mao, R. (2025). Assessing and mitigating the carbon emissions from illegal urban buildings: A spatial lifecycle analysis. *Resources, Conservation and Recycling*, 215, 108097. <https://doi.org/10.1016/j.resconrec.2024.108097>. (IF=10.9, 21/374)
- [10] Yan, X., Huang, Z.\*, Ren, S., **Yin, G.**, & Qi, J. (2024). Monthly electricity consumption data at 1 km× 1 km grid for 280 cities in China from 2012 to 2019. *Scientific Data*, 11(1), 877. <https://doi.org/10.1038/s41597-024-03684-4>. (IF=6.9, 15/135)
- [11] Huang, Z.\*<sup>#</sup>, Bao, Y.\*<sup>#</sup>, Mao, R.\*<sup>#</sup>, Wang, H., **Yin, G.**, Wan, L., ... & Liu, G.\* (2024). Big geodata reveals spatial patterns of built environment stocks across and within cities in China. *Engineering*, 34, 143-153. <https://doi.org/10.1016/j.eng.2023.05.015>. (IF=11.6, 3/175)
- [12] Bao, Y., Huang, Z.\*, Mao, R., Liu, G., Wang, H., & **Yin, G.** (2023). High-resolution mapping of material stocks in the built environment across 50 Chinese cities. *Resources, Conservation and Recycling*, 199, 107232. <https://doi.org/10.1016/j.resconrec.2023.107232>. (IF=10.9, 21/374)
- [13] Ren, S., Huang, Z.\*, Bao, Y., **Yin, G.**, Yang, J., & Shan, X. (2023). Matching end-of-life household vehicle generation and recycling capacity in Chinese cities: A spatio-temporal analysis for 2022–2050. *Science of The Total Environment*, 899, 165498. <https://doi.org/10.1016/j.scitotenv.2023.165498>. (IF=8.0, 39/374)
- [14] Wan, L., **Yin, G.**, Wang, J., Ben-Dor, G., Ogulenko, A., & Huang, Z.\* (2023). PATRIC: A high performance parallel urban transport simulation framework based on traffic clustering. *Simulation Modelling Practice and Theory*, 126, 102775. <https://doi.org/10.1016/j.simpat.2023.102775>. (IF=4.6, 17/128)
- [15] Bao, Y., Huang, Z.\*, Gong, X., Zhang, Y., **Yin, G.**, & Wang, H. (2023). Optimizing segmented trajectory data storage with HBase for improved spatio-temporal query efficiency. *International Journal of Digital Earth*, 16(1), 1124-1143. <https://doi.org/10.1080/17538947.2023.2192979>. (IF=4.9, 10/67)
- [16] Bao, Y., Huang, Z.\*, Wang, H., **Yin, G.**, Zhou, X., & Gao, Y. (2023). High-resolution quantification of building stock using multi-source remote sensing imagery and deep learning. *Journal of Industrial Ecology*, 27(1), 350-361. <https://doi.org/10.1111/jiec.13356>. (IF=5.4, 79/374)

- [17] Zhou, X., Dong, Q., Huang, Z.\*, **Yin, G.**, Zhou, G., & Liu, Y. (2023). The spatially varying effects of built environment characteristics on the integrated usage of dockless bike-sharing and public transport. *Sustainable Cities and Society*, 89, 104348. <https://doi.org/10.1016/j.scs.2022.104348>. (IF=12.0, 3/95)
- [18] Wang, H., Huang, Z.\*, Zhou, X., **Yin, G.**, Bao, Y., & Zhang, Y. (2022). DouFu: A double fusion joint learning method for driving trajectory representation. *Knowledge-Based Systems*, 258, 110035. <https://doi.org/10.1016/j.knosys.2022.110035>. (IF=7.6, 26/204)
- [19] Zhou, X., Huang, Z.\*, Wang, H., **Yin, G.**, Bao, Y., Dong, Q., & Liu, Y. (2022). Site selection for hybrid off-shore wind and wave power plants using a four-stage framework: A case study in Hainan, China. *Ocean & Coastal Management*, 218, 106035. <https://doi.org/10.1016/j.ocecoaman.2022.106035>. (IF=5.4, 3/65)
- [20] Wang, Y., Huang, Z.\*, **Yin, G.**, Li, H., Yang, L., Su, Y., ... & Shan, X. (2022). Applying Ollivier-Ricci curvature to indicate the mismatch of travel demand and supply in urban transit network. *International Journal of Applied Earth Observation and Geoinformation*, 106, 102666. <https://doi.org/10.1016/j.jag.2021.102666>. (IF=8.6, 5/65)
- [21] Wang, Y., Zhu, D., **Yin, G.**, Huang, Z.\*, & Liu, Y. (2020). A unified spatial multigraph analysis for public transport performance. *Scientific Reports*, 10(1), 9573. <https://doi.org/10.1038/s41598-020-65175-x>. (IF=3.9, 25/135)

## PRESENTATIONS & TALKS

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- [1] **Yin, G.** Analysis and application of urban sustainable transportation based on geographic big data. The 9th "Zhizhuo" Doctoral Student Forum by Wuhan University. Dec 1, 2024. Wuhan. China. (Oral)
- [2] **Yin, G.** Evaluating the efficiency-emission impacts of travel mode shift on sustainable transportation: A multi-objective optimization. The 2024 International Graduate Workshop on GeoInformatics (IGWG 2024). Oct 27, 2024. Beijing. China. (Oral)
- [3] **Yin, G.** Exploring the influencing factors of urban commercial agglomeration attractiveness based on mobile signaling big data. The 18th China Annual Conference on GIS Theory and Method. May 19-21, 2023. Guilin. China. (Oral)
- [4] **Yin, G.** Understanding public transport supply and demand from the perspective of public transport travel ratio in a fine spatial scale. The 29th International Conference on Geoinformatics (CPGIS 2021). November 3-5, 2021. Nanchang. China. (Oral)

## PROJECTS

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### Multi-source Trajectory Big Data Computing Methods and Applications for Traffic Infrastructure Optimization 2023.01 – 2026.12

Research Assistant · National Natural Science Foundation of China (No. 42271471)

- Examine human travel behaviour using multisource trajectory big data
- Apply big data analytics and machine learning algorithms for transportation optimization

### Mobility as a Service: From Rigid to Smart Evolving Public Transport 2019.08 – 2021.07

Research Assistant · National Key Research and Development Program of China (No. 2017YFE0196100)

- Analyze the supply and demand of urban public transportation with geospatial big data
- Responsible for project management, communication, and closure

## HONORS & AWARDS

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<b>Excellent Graduate</b> , Peking University ( <i>Top 10%</i> )	2025
<b>Merit Student</b> , Peking University ( <i>Top 20%</i> )	2024
<b>Rising Star Award</b> , College GIS Forum (CGF) of China ( <i>Ranked 1st nationwide</i> )	2023
<b>Presidential Scholarship</b> , Peking University ( <i>Top 5%, ¥82,000</i> )	2023
<b>Industrial Bank Scholarship</b> , Peking University ( <i>¥5,000</i> )	2023
<b>Academic Excellence Award</b> , Peking University ( <i>Top 20%</i> )	2023
<b>Presidential Scholarship</b> , Peking University ( <i>Top 5%, ¥82,000</i> )	2022
<b>Merit Student</b> , Peking University ( <i>Top 20%</i> )	2022
<b>LongRuan Scholarship</b> , Beijing LongRuan Technology Co. Ltd. ( <i>¥5,000</i> )	2020
<b>Study Excellence Award</b> , Peking University ( <i>Top 20%</i> )	2017

## SERVICES

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### *Peer Reviewer*

Sustainable Cities and Society	2025
Transportation	2025
Journal of Cleaner Production	2025
Journal of Asian Architecture and Building Engineering	2025
Transportation Research Part D: Transport and Environment	2025
ISPRS Journal of Photogrammetry and Remote Sensing	2025
Journal of Transport Geography	2024
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing	2024
International Journal of Transportation Science and Technology	2024
Heliyon	2024
Computers, Environment and Urban Systems	2024
Cities	2024
International Journal of Applied Earth Observation and Geoinformation	2024
Urban Climate	2023
Transactions in GIS	2021

### *Session Chair*

The 2021 International Graduate Workshop on GeoInformatics (IGWG 2021)	2021
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## REFERENCES

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**Fan Zhang**, Assistant Professor

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