

Zhicheng Deng

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EDUCATION

- 2023–26 **Peking University**, Master Student in *Geography (Smart Cities and Big Data)*
Supervisor: Asst. Prof. Zhaoya Gong
GPA: 3.94/4.0 (Ranked: 1st/50)
Coursework: Urban Space-Time Analytics and GeoComputation; Smart Cities: Theories and Methods
- 2021–22 **The Hong Kong Polytechnic University**, Exchange Student in *Land Surveying and Geo-Informatics*
GPA: 3.94/4.3
Coursework: Urban Informatics and City Planning; Cartography and Geovisualization
- 2019–23 **Nanjing Normal University**, Bachelor of Science in *Geographic Information Science*
Supervisor: Prof. Linwang Yuan and Prof. Zhaoyuan Yu
GPA: 4.18/5.0 (Ranked: 1st/70)
Coursework: Principles of GIS; Geographic Modeling Methods; Spatial Data Mining; Python for Spatial Analysis

RESEARCH

Human Mobility and Spatial Behavior

* denotes the corresponding author, and †denotes equal contributions.

- [1] Zhaoya Gong, **Zhicheng Deng***, Junqing Tang, Hongbo Zhao, Zhengying Liu, and Pengjun Zhao. (2025). “Uncovering human behavioral heterogeneity in urban mobility under the impacts of disruptive weather events.” *International Journal of Geographical Information Science*, 39(5), 951–974. (Corresponding author with supervisor being first author)
- [2] **Zhicheng Deng**, Zhaoya Gong, Jean-Claude Thill, and Elizabeth C. Delmelle. “Measuring Accessibility in Derived Hierarchical Travel Spaces from Human Mobility.” *Annals of the American Association of Geographers*, under review.
- [3] **Zhicheng Deng**[†], Zhaoya Gong[†], Haoran Zhang, Ran Tao, and Pengjun Zhao. “Discovering the scales of human mobility under natural hazards.” *Nature Communications*, in submission.
- [4] **Zhicheng Deng**, Zhaoya Gong, and Pengjun Zhao. (2023). “Uncovering Spatiotemporal Patterns of Travel Flows Under Extreme Weather Events by Tensor Decomposition.” In *12th International Conference on Geographic Information Science (GIScience 2023)* (Vol. 277, p. 27:1-27:6). Schloss Dagstuhl – Leibniz-Zentrum für Informatik.

GeoAI and Large Language Model

- [1] **Zhicheng Deng**[†], Luyao Niu[†], Boyang Li, Nuoxian Huang, and Wenjia Zhang. “AskNearby: An LLM-Based Application for Neighborhood Information Retrieval and Personalized Cognitive-Map Recommendations.” *SIGSPATIAL’25: Proceedings of the 33rd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, under review.
- [2] Chenglong Wang[†], and **Zhicheng Deng**^{†*}. (2023). “Multi-perspective Spatiotemporal Context-aware Neural Networks for Human Mobility Prediction.” *HuMob’23: Proceedings of the 1st ACM SIGSPATIAL International Workshop on Human Mobility Prediction Challenge*, 32-36.

Urban Function Modeling

- [1] **Zhicheng Deng**, Xiangting You, Zhaoyang Shi, Hong Gao, Xu Hu, Zhaoyuan Yu, and Linwang Yuan. (2022). “Identification of Urban Functional Zones Based on the Spatial Specificity of Online Car-Hailing Traffic Cycle.” *ISPRS International Journal of Geo-Information*, 11(8), 435.
- [2] Zhaoya Gong, Chenglong Wang, Bin Liu, Binbo Li, Wei Tu, Yuting Chen, **Zhicheng Deng**, and Pengjun Zhao. (2025). “Multi-spatial urban function modeling: A multi-modal deep network approach for transfer and multi-task learning.” *International Journal of Applied Earth Observation and Geoinformation*, 136, 104397.

Environmental Health and Social Segregation

- [1] Ziyue Guo, Teng Fei, **Zhicheng Deng**, Yonggai Zhuang, and Yi Fu. “Unraveling the relationship between human emotion and population distribution formation.” *Nature Cities*, in process (now our preliminary results have been accepted as a poster at GIScience 2025).
- [2] Zhaoya Gong, Xinshu Li, **Zhicheng Deng***, and Yilin Chen. “New evidence on the impact of integrated indoor and outdoor PM2.5 exposure on cardiovascular mortality in China.” *Nature Communications*, in process.

PROJECTS

- 2025–28 **National Natural Science Foundation of China**, General Project
 - *Space of human travel flows in urban agglomerations: cross-level interactions and simulation*
 - Research Assistant: supported grant proposal preparation and documentation; studied spatiotemporal measurement and mechanistic analysis of cross-hierarchical mobility patterns in urban agglomerations
- 2024–25 **AskNearby: Bridging Small Neighborhoods with Large Language Model**
 - Principal Investigator, funded by Shenzhen Nanshan Charity Federation (¥120,000)
 - Developed and launched an app integrating a large language model with spatial cognition and a spatiotemporal social platform, gaining over 1,000 users

HONORS AND AWARDS

- 2024 Merit Student of Peking University
- 2024 Gold Award, The 7th Social Innovation Project Competition for College Students in Nanshan
- 2024 Finalist, Baidu Ernie Cup Innovation Challenge 2024
- 2024 Tiehan Scholarship, Peking University Shenzhen Graduate School
- 2023 Outstanding Graduate of Nanjing Normal University
- 2022 Merit Student of Nanjing Normal University
- 2022 Third Prize, Python Programming Group A, The National Finals of the 13th Blue Bridge Cup
- 2021 National Third Prize, SuperMap Cup University GIS Contest (Top 5 Teams)

SKILLS

Programming Python (proficient), SQL, R, C/C++ (working knowledge)

Software ArcGIS, QGIS, Microsoft Office

Language TOEFL: 101 (Reading:27, Listening:26, Speaking:22, Writing:26)

Updated June 2025