CURRICULUM VITAE

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EDUCATION

Ph.D. (09/2015-12/2019)	**Cartography and Geographic Information Science, Wuhan University, China** Dissertation: *Big Data-Driven Analysis on Urban Activity Space Dynamics*
M.E. (09/2013-06/2015)	**Surveying and Mapping Engineering, Wuhan University, China** Dissertation: *Cabdrivers' Behavior Patterns Analysis from the Trajectory Data*
B.S. (09/2009-06/2013)	**Geographic Information System, Wuhan University, China** Dissertation: *Risk Assessment for Drought Disaster Based on Graphic Modeling*

RESEARCH INTERESTS

- Human Dynamics and Urban Informatics
- Spatiotemporal Data Mining and Social Computing
- Human Mobility and Social Inequality
- Data-driven Urban Analytics
- Fintech

PROFESSIONAL POSITIONS

09/2023-present	Assistant Professor, Shenzhen University, Shenzhen, China
02/2022-08/2023	Research Fellow, University College London, UK
03/2021-11/2021	Postdoctoral Fellow, The Hong Kong Polytechnic University, Hong Kong
01/2020-02/2021	Postdoctoral Fellow, Shenzhen University, Shenzhen, China

RESEARCH PROJECTS

2021-2023 National Natural Science Foundation of China (NSFC), "*Method of Measuring Urban Inequality Based on Multi-dimensional Activity Space Features* (基于多维活动空间特征的城市不平等性测度方法研究)". (**PI**, CNY 240,000)

- Inferring individual activity space features from big data.
- Measuring disparities in activity patterns among different social groups based on inferred activity space features.
- Modeling the associations between urban spatial structure and activity disparities.

2021-2022 Postdoctoral Science Foundation of China (NSFC), "*Identifying the boundaries and spatial structure of metropolitan areas using multi-source big data* (大数据解析都市圈范围及其空间结构)". (**PI**, CNY 80,000)

- Inferring mobility patterns from multi-source spatio-temporal data.
- Identifying the boundaries of metropolitan areas based on multi-dimensional indicators.
- Revealing the spatial structure of metropolitan areas from the dual perspective of "function-network".

2023-Present European Research Council (ERC) Starting Grant, *"Redefining Variability: EvALuating Land Use and TRansport Impacts on Urban Mobility PatternS (realTRIPS)"* (Core researcher)

Project website: https://smartcityanalysis.com/

- Developing a set of mobility measures using emerging location data in a series of urban development scenarios.
- Testing the generic applicability of the proposed framework, methods and models by applying them to case studies in typical urbancontexts.

2019-2023 National Natural Science Foundation of China-Joint Programming Initiative Urban Europe (NSFC-JPI_UE), "*SIMETRI: Sustainable Mobility and Equality in Megacity Regions-Patterns, Mechanisms and Governance* (超大城市区域的可持续交通与均等化：模式、机理与治理)". (Core researcher, CNY 2,200,000)

Project website: https://simetri.uk/

- Developing a data analysis and simulation platform.
- Studying socio-spatial segregation using new sources of big data.
- Investigating the influencing factors of socio-spatial inequality.

2017-2020 National Natural Science Foundation of China (NSFC), "*Data-driven Research on Spatial Selection Behavior Mechanism* (大数据驱动的空间选择行为机制研究)". (Core researcher, CNY 650,000)

- Exploring individual travel trajectory and attribute characteristics from various big data, including public transit smart card data, private vehicle plate recognition data.
- Evaluating individual and collective characteristics and differences based on data-driven approach.

PUBLICATIONS (FIRST AUTHOR AND CORRESPONDING AUTHOR)

- **Gao, Q.L.**, Zhong, C.*, Yue, Y., Cao, R., Zhang, B. Income estimation based on human mobility patterns and machine learning models. *Applied Geography*, 2024, 163, 103179.
- **Gao, Q.L.**, Yue, Y., Zhong, C., Cao, J., Tu, W., Li, Q.Q. Revealing transport inequality from an activity space perspective: A study based on human mobility data. *Cities*, 2022, 131, 104036.
- Yang, Y., Zhong, C., **Gao, Q.L.***. An extended node-place model for comparative studies of transit-oriented development. *Transportation Research Part D: Transport and Environment*, 2022, 113, 103514.
- Li, Q.-Q., Yue, Y., **Gao, Q.-L.***, Zhong, C., Barros, J. Towards a new paradigm for segregation measurement in an age of big data. *Urban Informatics*, 2022, 1(1), 1-15.

- **Gao, Q.-L.**, Yue, Y*., Tu, W., Cao, J., Li, Q.-Q. Segregation or integration? Exploring activity disparities between migrants and settled urban residents. *Transactions in GIS*, 2021, 25(6), 2791-2820.
- **Gao, Q.-L.***. Big data-driven analysis on urban activity space dynamics. *Acta Geodaetica et Cartographica Sinica (测绘学报)*, 2020, 50(6), 850.
- **Gao, Q.-L.**, Li, Q.-Q*., Zhuang, Y., Yue, Y., Liu, Z.-Z., Li, S.-Q., Sui, D. Urban commuting dynamics in response to public transit upgrades: A big data approach. *PloS one*, 2019, 14(10), e0223650.
- **Gao, Q.-L**., Li, Q.-Q*., Yue, Y., Zhuang, Y., Chen, Z.-P., Kong, H. (2018). Exploring changes in the spatial distribution of the low-to-moderate income group using transit smart card data. *Computers, Environment and Urban Systems*, 2018, 72, 68-77.

OTHER PUBLICATIONS

- Cao, R.*, **Gao, Q-L.**, Qiu, G. Responsible urban intelligence: Towards a research agenda (Vision Paper). *Spatial Data Science Symposium 2023 Short Paper Proceedings*, 2023.
- Liao, C., Cao, R.*, **Gao, Q-L.**, Cao, J., & Luo, N. Exploring how street-level images help enhance remote sensing-based local climate zone mapping. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing,* 2023, 16, 7662-7674.
- Cao, J., Tu, W., Cao, R., **Gao, Q.**, Chen, G., & Li, Q. Untangling the association between urban mobility and urban elements. *Geo-spatial Information Science*, 2023, 1-19.
- Zhang, B., Zhong, C.*, **Gao, Q.**, Shabrina, Z. Delineating urban functional zones using mobile phone data: a case study of cross-boundary integration in Shenzhen-Dongguan-Huizhou Area. *Computers, Environment and Urban Systems*, 2022, 98, 101872.
- Zeng, J., Yue, Y*., **Gao, Q**., Gu, Y., & Ma, C. Identifying localized amenities for gentrification using a machine learning-based framework. *Applied Geography*, 2022, 145, 102748.
- Wang, Y., Zhong, C.*, **Gao, Q**., Cabrera-Arnau, C. Understanding internal migration in the UK before and during the COVID-19 pandemic using Twitter data. *Urban Informatics*. 2022, 1, 15.
- Liang, Y., **Gao, Q.**, Guo, Li., Yue, Y. Multi-Level analysis of commuting heterogeneity incorporating urban spatial factors. *Urban Transport of China* (*城市交通*), 2022, 20(04), 111-119.
- Cao R, Tu W, Cai J, Zhao T, Xiao J, Cao J, **Gao Q**, Su H. Machine learning-based economic development mapping from multi-source open geospatial data. ISPRS Annals of Photogrammetry, Remote Sensing & Spatial Information Sciences. 2022 May 1(4).
- Cao, J., Li, Q., Tu, W*., **Gao, Q.**, Cao, R., & Zhong, C. Resolving urban mobility networks from individual travel graphs using massive-scale mobile phone tracking data. *Cities*, 2020, 110, 103077.
- Tu, W*., Cao, J., **Gao, Q.**, Cao, R., Fang, Z., Yue, Yang., Li, Q. Sensing urban dynamics by fusing multi-source spatio-temporal big data. *Geomatics and Information Science of Wuhan University (武汉大学学报·信息科学版)*, 2020, 45(12), 1875.
- Yeh, A.G., Yue, Y., Zhou, X., **Gao, Q. L**. Big data, urban analytics and the planning of smart cities, 2020. In Handbook of Planning Support Science. Edward Elgar Publishing.
- Liu, C. K., Jia, T., **Gao, Q. L**., Wang, Y. L., Qin, K., Tao, H. B. (2016). Study on location and allocation of healthcare center based on improved genetic algorithm. *Computer Engineering and Applications*, 52(6), 13-18.
- Jia, T., Tao, H., Qin, K., Wang, Y., Liu, C., **Gao, Q**. Selecting the optimal healthcare centers with a modified p-median model: a visual analytic perspective. *International Journal of Health*

Geographics (计算机工程与应用). 2014 13(1), 42.

TEACHING EXPERIENCES

2022 **Advanced Geographic Information Systems (Guest Lecturer)**
The Hong Kong Polytechnic University
大数据与城市分析 (Guest Lecturer)
Shenzhen University
Master Dissertation Supervision 2022
University College London
Quantitative Methods 22/23 (Teaching assistant)
University College London
UCL Arena for Postdocs 2022 (six weeks)
University College London

2023 **Master Dissertation Co-Supervision 2023**
University College London
E-commerce case analysis 2023 (Undergraduate)
Shenzhen University

INVITED/CONFERENCE TALKS

2023 **Gao, Q.-L**., Wang, Y., Zhong, C. Understanding urban inequality and scaling law: A human mobility perspective, 2023. On-site. Glasgow, UK. Poster.

2022 **Gao, Q.-L**., Zhong, C. Yue, Y. SIMETRI: Socio-spatial inequalities and human mobility in megacities?. Hybrid Symposium on Applied Urban Modelling, 2022. Oral presentation.

2021 **Gao, Q.-L**., Zhong, C. Yue, Y. Activity inequality by income status?. The 2021 European Colloquium on Theoretical and Quantitative Geography, 2021. Online. Oral presentation.
Gao, Q.-L. Understanding socio-spatial inequality using human mobility data. The Smart Cities Research Institute (SCRI) salon, 2021. Hong Kong, China. Invited talk.

2020 **Gao, Q.-L**., Yue, Y. Li, Q.-Q. Revealing activity disparity between different social groups by travel mode. The 16th Workshop on Spatial Behavior and Planning, 2020. Xiamen, China. Oral presentation.

2019 **Gao, Q.-L.**, Yue, Y. Li, Q.-Q. Exploring the spatial segregation of new migrants based on activity space: A big data approach. The 27th International Conference on Geoinformatics, 2019. Sydney Australia. Oral presentation.
Gao, Q.-L., Yue, Y. Li, Q.-Q. Understanding socio-spatial segregation from activity space: A big data approach. The 13th IACP conference, 2019. Chengdu, China. Oral presentation.
Gao, Q.-L., Yue, Y. Li, Q.-Q. Urban commuting dynamics in response to public transit upgrades: A big data approach. The 16th Interactional Conference on Computers in Urban Planning and Urban Management, 2019. Wuhan, China. Poster.

2017 **Gao, Q.-L.**, Yue, Y. Li, Q.-Q. Identifying intra-city residential spatial distribution changes using transit smart card data, The 25th International Conference on Geoinformatics, 2017. Buffalo, U.S. Oral presentation.

PROFESSIONAL SKILLS

- Strong skills in spatiotemporal data analytics, Urban modeling and visualization, Statistics.
- Domain knowledge in GIS, Urban geography, Transportation studies, Urban theories, Data science and Machine learning.
- Proficient in programming languages such as Python, Matlab.
- Expert in ArcGIS, GeoDa, QGIS, SPSS.