Curriculum Vitae

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CONTACT INFORMATION

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PROFESSIONAL APPOINTMENTS

Aug 2022 – , **Assistant Professor**, Department of Geography and Resource Management, The Chinese University of Hong Kong.

Jan 2020 – July 2022, **Research Grants Council Postdoctoral Fellow**, Institute of Space and Earth Information Science, The Chinese University of Hong Kong.

Feb 2019 – Aug 2019, **Research Associate**, Department of Land Surveying and Geo-Informatics, The Hong Kong Polytechnic University.

EDUCATION

Sept 2014 – Dec 2019 **Ph.D.** in **Photogrammetry and Remote Sensing**

Wuhan University, China

Sept 2017 – Dec 2018 **Joint Ph.D. Program**

University of Illinois at Urbana-Champaign, USA

Sept 2010 – Jun 2014 **B.S.** in **Cartography and Geographic Information Engineering**

Wuhan University, China

RESEARCH INTERESTS

- Geographic Information Science (GIS)
- Human mobility
- Transport Geography
- Travel Behavior
- GeoAI
- Environmental Health
- Environment Management
- Geovisualization

AWARDS

2026. International Geographical Union (IGU) Early Career Award
2026. Departmental Research Output Award

2025. Departmental Research Output Award

2024. CUHK Strategic Partnership Award for Research Collaboration

2021. Advancing Diversity and Inclusion Award, Energy and Environment Specialty Group of the American Association of Geographers

2020. Research Grants Council (RGC) Postdoctoral Fellowship, Research Grants Council (PDFS2021-4S08) (Hong Kong)

2019. University Scientific Research Outstanding Achievement Award (Science and Technology). Ministry of Education (China)

2019. Graduate Academic Innovation Award, Wuhan University

2019. Outstanding Doctoral Candidate Scholarship, Wuhan University

2017. First Prize in Progress in Surveying and Mapping Technology. Chinese Society for Geodesy Photogrammetry and Cartography.

2017. National Scholarship, Ministry of Education (China)

2017. Joint Ph.D. Student Program Scholarship, China Scholarship Council

2017. First Class Scholarship, Wuhan University

2015. Grand Prize for Outstanding Paper, National Remote Sensing and Geographical Information Science Postgraduate Forum (China)

2015. Kwang-Hua Scholarship, Taiwan Kwang-Hua Education Foundation

2015. First Class Scholarship, Wuhan University

PUBLICATIONS

1. Jin, X., **Kan, Z.***, He, S.Y., Lu, D. and Zhang, W., 2026. The task utility gap in human mobility modeling: evidence from environmental exposure assessment. *International Journal of Geographical Information Science*, pp.1-27.
2. Su, L., **Kan, Z.***, Wang, J., Kwan, M.P. and Liu, D., 2026. Developing a Context-Sensitive Framework for Evaluating Urban Greenspace Indicators Across Diverse Geographic Settings. *Environmental Research*, p.126012.
3. Wei, J., **Kan, Z.*** and Kwan, M.P., 2026. Activity-driven dual exposure to congestion and crowding: Exploring multiple constraints for peak-hour bus travel burdens using smart card data. *Transportation Research Part A: Policy and Practice*, *214*, p.105263.
4. Wei, S., **Kan, Z.***, Liu, Y., Hao, H. and Liu, D., 2026. Behavior-Oriented Inference of Trip Purposes and Urban Mobility Structures From Dockless Bike-Sharing Data. *Transactions in GIS*, *30*(7), p.e70445.
5. Jing, F., Fan, X., Zhou, S., **Kan, Z**., Song, G., Chen, C., Yang, T., Miao, Q., Zeng, H. and Li, D., 2026. Prioritizing e-bike protection across neighborhood labor-income contexts: Missing bike–motor separation and crash-conditional injury severity in Guangzhou, China. *Journal of Transport Geography*, *137*, p.104836.
6. Wei, J., **Kan, Z.*** and Kwan, M.P., 2026. Examining dual exposure to traffic congestion and in-vehicle crowding among senior and regular cardholders using smart card data. *Cities*, *178*, p.107379.
7. Zhao, Z., Kwan, M.P. and **Kan, Z**., 2026. Identifying multi-scale human flow clusters via spatiotemporal network flow L function. *International Journal of Applied Earth Observation and*

Geoinformation, *152*, p.105428.

8. Yang, X., Wu, C., Yan, Z., **Kan, Z**., Guan, Q. and Tang, L., 2026. Enhancing non-motorized travel using reinforcement learning: a novel dynamic route planning approach. *Geo-spatial Information Science*, pp.1-21.
9. **Kan, Z**., Wei, J., Schwanen, T., Kwan, M.P., Liu, D. and Huang, J., 2026. A network-based approach to understand the risk of mobility-related social exclusion in spatiotemporal activities. *Journal of Transport Geography*, *134*, p.104712.
10. Yang, X., Zhang, Z., Zeng, Y., **Kan, Z**. and Tang, L., 2026. SAFNet: A Framework for Generating Tactile Paving Networks from Street View Images. *Journal of Geovisualization and Spatial Analysis*, *10*(1), p.14.
11. Shi, H., Qi, H., **Kan, Z.***, Guo, X. and Tang, L., 2026. From micro mobility to macro patterns: a vector field-based framework powered by a data-driven flow model for extracting coherent micro-macro traffic dynamics. *International Journal of Geographical Information Science*, pp.1-29.
12. Liu, D., Nakaya, T., Cai, T., Huang, J., Luo, J., Wang, J., Liu, Y., Xian, Z. and **Kan, Z.***, 2026. A GeoAI-informed floating catchment area framework for assessing spatiotemporal equity of park accessibility for elderly population using dynamic popularity weighting and 3D pedestrian network. *Urban Forestry & Urban Greening*, p.129529.
13. **Kan, Z**., Huang, J., Liu, D., Pereira, R.H. and Gilliland, J., 2026. Integrated AI framework combining routing, computer vision, and large language models to assess urban park access disparities among people with and without mobility impairments. *Sustainable Cities and Society*, p.107528.
14. Jing, F., Hu, J., Zhou, S., **Kan, Z**., He, G., Hu, J., Liu, T., Zhang, M., Luo, L., Ma, M. and Lin, Z., 2026. Estimating $PM_{2.5}$–influenza risk using home–school–commute exposure modeling from hourly monitoring data: schoolchildren in Guangzhou, China, 2014–2019. *BMC Public Health*.
15. Wei, J., **Kan, Z.*** and Kwan, M.P., 2026. Revealing sequential activity-travel patterns and spatial structures among older and younger adults from smart card data. *Transportation Research Part A: Policy and Practice*, *203*, p.104749.
16. Liu, D., Gilliland, J., Nakaya, T., **Kan, Z**.*, Nagata, S. and Huang, J., 2026. Strengthening Urban Pandemic Preparedness: A Dual-Focused Machine Learning-Enhanced Spatial Evaluation of Pandemic Vulnerability Through Infection Risk and Vaccination Accessibility. *Applied Spatial Analysis and Policy*, *19*(1), p.1.
17. Liu, D., **Kan, Z**., Fei, T., Chen, Y., Zhang, Y. and Zheng, Q., 2026. Applications in urban sensing for smart cities. In *Multimodal Remote Sensing Fusion and Classification* (pp. 293-347). Elsevier.
18. **Kan, Z.,** Wei, J., Kwan, M.P. and Yang, Z., 2025. A trajectory mining framework for exploring individual concurrent environmental exposure and its association with mental health. *Social Science & Medicine*, p.118768.
19. Liu, D., Huang, J., Fang, D., Lee, J., Liu, Y., Wang, S. and **Kan, Z.*** 2025. Assessment of the 15-minute park accessibility accounting for fine-grained 3d pedestrian network and subjective quality perception among the public housing residents. *Urban Forestry & Urban Greening*, p.129165.
20. Liu, D., **Kan, Z**., Wang, J., Kwan, M.P., Song, J. and Wei, J., 2025. Using spatially explicit high-granularity 3D geospatial data for quantifying public transport walking accessibility inequality and vulnerability in the x-minute city. *Cities*, *166*, p.106245.
21. Shi, H., **Kan, Z***., Qi, H., Zhao, Z., Chen, T. and Tang, L., 2025. Beyond the jam: field theory modeling of congestion's ripple effects on traffic dynamics. *GIScience & Remote Sensing*, *62*(1),

p.2547126.

22. Liu, D., Yang, Z., **Kan, Z**., Kwan, M.P. and Song, J., 2025. Real-time mobile sensing calibrated by random forest for spatiotemporal assessment of air pollution exposure distribution and inequality. *Health & Place*, *96*, p.103579.
23. Wei, J., **Kan, Z**., Liu, Z., Wang, Z. and Chen, Y., 2025. Exploring spatio-temporal variations in nonlinear correlations between the built environment and metro-bike travel: evidence from Beijing. *Transportmetrica B: Transport Dynamics*, *13*(1), p.2541282.
24. Yue, Y., Yan, G., Lan, T., Cao, R., Gao, Q., Gao, W., Huang, B., Huang, G., Huang, Z., **Kan, Z**. and Li, X., 2025. Shaping future sustainable cities with AI-powered urban informatics: Toward human-AI symbiosis. *Computational Urban Science*, *5*(1), p.31.
25. Liu, D., Wei, J. and **Kan, Z***., 2025. Integrated transit service status assessment using smart transit card big data under the x-minute city framework. *Journal of Transport Geography*, *125*, p.104189.
26. Liu, D., **Kan, Z**., Kwan, M.P., Cai, J. and Liu, Y., 2025. Assessing the impact of socioeconomic and environmental factors on mental health during the COVID-19 pandemic based on GPS-enabled mobile sensing and survey data. *Health & Place*, *92*, p.103419.
27. Su, L., **Kan, Z***. and Kwan, M.P., 2025. Exploring the factors behind the discrepancy between two-dimensional and three-dimensional indicators of greenspace exposure. *Ecological Indicators*, *175*, p.113584.
28. Wei, J., **Kan, Z**., Liu, Z., Wang, Z. and Chen, Y., 2025. Exploring spatio-temporal variations in nonlinear correlations between the built environment and metro-bike travel: evidence from Beijing. *Transportmetrica B: Transport Dynamics*, *13*(1), p.2541282.
29. Zhao, Z., **Kan, Z**., Kwan, M.P. and Tang, L., 2025. Identifying urban spatial clusters via flow dynamics: a coupled tensor-based method. *International Journal of Digital Earth*, *18*(1), p.2525382.
30. Guo, X., Fang, M., Tang, L., **Kan, Z**., Yang, X., Pei, T., Li, Q. and Li, C., 2025. An adaptive OD flow clustering method to identify heterogeneous urban mobility trends. *Journal of Transport Geography*, *123*, p.104080.
31. **Kan, Z***., Liu, D., Yang, X. and Lee, J., 2024. Measuring exposure and contribution of different types of activity travels to traffic congestion using GPS trajectory data. *Journal of Transport Geography*, *117*, p.103896.
32. Liu, D., **Kan, Z**., Kwan, M.-P. and Tang, L. 2024, Space–time analysis of refueling patterns of alternative fuel vehicles using GPS trajectory data and machine learning. *Transactions in GIS*. https://doi.org/10.1111/tgis.13258.
33. Wei, J., **Kan, Z***., Kwan, M.P., Liu, D., Su, L. and Chen, Y., 2024. Uncovering travel communities among older and younger adults using smart card data. *Applied Geography*, *173*, p.103453.
34. Shi, H., Zhao, Z., Tang, L., **Kan, Z**. and Du, Y., 2024. Advancing human mobility modeling: a novel path flow approach to mining traffic congestion dynamics. *International Journal of Geographical Information Science*, p.1-28.
35. Zhao, Z., Tang, L., Ren, C., Yang, X., **Kan, Z**. and Li, Q., 2024. Diagnosing urban traffic anomalies by integrating geographic knowledge and tensor theory. *GIScience & Remote Sensing*, *61*(1), p.2290347.c
36. Liu, D., **Kan, Z**. and Lee, J., 2024. The proposal of a 15-minute city composite index through integrating GPS trajectory data-inferred urban function attraction based on the Bayesian framework. *Applied Geography*, *173*, p.103451.

37. Huang, J., Kwan, M.P., **Kan, Z**., Kieu, M., Lee, J., Schwanen, T. and Yamada, I., 2024. Inter-relationships among individual views of COVID-19 control measures across multi-cultural contexts. *Social Science & Medicine*, *358*, p.117247.
38. Liu, D., Kwan, M.P., Yang, Z. and **Kan, Z**., 2024. Comparing subjective and objective greenspace accessibility: Implications for real greenspace usage among adults. *Urban Forestry & Urban Greening, 96,* p.128335.
39. Zheng, L., Kwan, M.P., Liu, Y., Liu, D., Huang, J. and **Kan, Z**., 2024. How mobility pattern shapes the association between static green space and dynamic green space exposure. *Environmental Research*, *258*, p.119499.
40. Liu, D., Kwan, M.P., Wang, L., **Kan, Z**., Wang, J. and Huang, J., 2024. Development of a Chrono-Urbanism Status Composite Index under the 5/10/15-Minute City Concept Using Social Media Big Data. *Tijdschrift voor economische en sociale geografie*. *115: 554-570.*
41. Kwan, M.P., Huang, J. and **Kan, Z**., 2023. People's political views, perceived social norms, and individualism shape their privacy concerns for and acceptance of pandemic control measures that use individual-level georeferenced data. *International Journal of Health Geographics*, *22*(1), p.35.
42. **Kan, Z**., Kwan, M.P., Huang, J., Cai, J. and Liu, D., 2023. A Spatial Network-Based Assessment of Individual Exposure to COVID-19. *Annals of the American Association of Geographers*, p.1-11.
43. Ahmed, N., Lee, J., Liu, D., **Kan, Z**. and Wang, J., 2023. Identifying urban green space deserts by considering different walking distance thresholds for healthy and socially equitable city planning in the Global South. *Urban Forestry & Urban Greening*, 89, p.128123.
44. **Kan, Z**., Kwan, M.P., Cai, J., Liu, Y. and Liu, D., 2023. Nonstationary relationships among individuals' concurrent exposures to noise, air pollution and greenspace: A mobility-based study using GPS and mobile sensing data. *Health & Place*, 83, p.103115.
45. Cai, J., Kwan, M.P., **Kan, Z.** and Huang, J., 2023. Perceiving noise in daily life: How real-time sound characteristics affect personal momentary noise annoyance in various activity microenvironments and times of day. *Health & Place*, *83*, p.103053.
46. Liu, D., Kwan, M.P., **Kan, Z.,** Song, Y. and Li, X., 2023. Racial/ethnic inequity in transit-based spatial accessibility to COVID-19 vaccination sites. *Journal of Racial and Ethnic Health Disparities*, *10*(4), p.1533-1541.
47. Liu, D., Kwan, M.P., **Kan, Z.** and Liu, Y., 2023. Examining individual-level tri-exposure to greenspace and air/noise pollution using individual-level GPS-based real-time sensing data. *Social Science & Medicine*, p.116040.
48. Liu, D., Kwan, M.P. and **Kan, Z**., 2023. Assessment of doubly disadvantaged neighborhoods by healthy living environment exposure. *Applied Spatial Analysis and Policy*, *16*(2), p.689-702.
49. Liu, Y., Kwan, M.P. and **Kan, Z**., 2023. Inconsistent association between perceived air quality and self-reported respiratory symptoms: a pilot study and implications for environmental health studies. *International Journal of Environmental Research and Public Health*, *20*(2), p.1491.
50. **Kan, Z**., Kwan, M.P. and Tang, L., 2022. Ripley's K-function for network-constrained flow data. *Geographical Analysis*, *54*(4), p.769-788.
51. **Kan, Z.**, Kwan, M.P., Liu, D., Tang, L., Chen, Y. and Fang M., 2022. Assessing individual activity-related exposures to traffic congestion using GPS trajectory data. *Journal of Transport Geography*, *98*, 103240.
52. Liu, D., Kwan, M.P., **Kan, Z.**, Song, Y. and Li, X., 2022. Inter-and intra-racial/ethnic disparities in walking accessibility to grocery stores. *Area*, *54*(4), pp.627-637.

53. Zhao, Z., Fang, M., Tang, L., Yang, X., **Kan, Z**. and Li, Q., 2022. The Impact of Community Shuttle Services on Traffic and Traffic-Related Air Pollution. *International Journal of Environmental Research and Public Health*, *19*(22), p.15128.
54. Tang, L., Zhao, Z., Yang, X., **Kan, Z**., et al., Road crowd-sensing with high spatio-temporal resolution in big data era. *Acta Geodaetica et Cartographica Sinica*, 2022, 51(6): 1070-1090.
55. **Kan, Z.**, Kwan, M.P., Ng, M. K., Tieben, H., 2022. The Impacts of Housing Characteristics and Built-Environment Features on Mental Health. *International Journal of Environmental Research and Public Health*, 19(9): 5143. https://doi.org/10.3390/ijerph19095143
56. Liu, D., Kwan, M.P., **Kan, Z**., Song, Y. and Li, X., 2022. Racial/Ethnic Inequity in Transit-Based Spatial Accessibility to COVID-19 Vaccination Sites. *Journal of Racial and Ethnic Health Disparities*, 1-9.
57. Liu, D., Kwan, M.P., Huang, J., **Kan, Z.**, Song Y. and Li, X., 2022. Analyzing income-based inequality in transit nodal accessibility. *Travel Behaviour and Society*. *27*, 57-64. https://doi.org/10.1016/j.tbs.2021.11.005
58. Huang, J., Kwan, M.P., Cai, J., Song, W., Yu, C., **Kan, Z**. and Yim, S.H.L., 2022. Field Evaluation and Calibration of Low-Cost Air Pollution Sensors for Environmental Exposure Research. *Sensors*, 22(6), 2381. https://doi.org/10.3390/s22062381
59. Liu, D., Kwan, M.P., **Kan, Z**. and Wang, J., 2022. Toward a healthy urban living environment: Assessing 15-minute green-blue space accessibility. *Sustainability*, *14*(24), p.16914.
60. **Kan, Z.**, Kwan, M.P., Huang, J., Wong, M.S. and Liu, D., 2021. Comparing the space-time patterns of high-risk areas in different waves of COVID-19 in Hong Kong. *Transactions in GIS*. 00, 1– 20. https://doi.org/10.1111/tgis.12800
61. **Kan, Z.**, Kwan, M.P., Wong, M.S., Huang, J. and Liu, D., 2021. Identifying the space-time patterns of COVID-19 risk and their associations with different built environment features in Hong Kong. *Science of the Total Environment*, 772, 145379. https://doi.org/10.1016/j.scitotenv.2021.145379
62. Huang, J., Kwan, M.P. and **Kan, Z.**, 2021. The superspreading places of COVID-19 and the associated built-environment and socio-demographic features: A study using a spatial network framework and individual-level activity data. *Health & Place*, 102694. https://doi.org/10.1016/j.healthplace.2021.102694
63. Ren, C., Tang, L., Long, J., **Kan, Z.** and Yang, X., 2021. Modelling place visit probability sequences during trajectory data gaps based on movement history. *ISPRS International Journal of Geo-Information*, 10(7), 456. https://doi.org/10.3390/ijgi10070456
64. Kwok, C.Y.T., Wong, M.S., Chan, K.L., Kwan, M.P., Nichol, J.E., Liu, C.H., Wong, J.Y.H., Wai, A.K.C., Chan, L.W.C., Xu, Y., Li, H., Huang, J. and **Kan, Z.**, 2021. Spatial analysis of the impact of urban geometry and socio-demographic characteristics on COVID-19, a study in Hong Kong. *Science of the Total Environment*, 764, 144455. https://doi.org/10.1016/j.scitotenv.2020.144455
65. Liu, D., Kwan, M.P., **Kan, Z.**, 2021. Analyzing disparities in transit-based healthcare accessibility in the Chicago Metropolitan Area. *Canadian Geographer/Le Géographe canadien*. 1-15. https://doi.org/10.1111/cag.12708
66. Liu, D., Kwan, M.P., **Kan, Z.** and Song, Y., 2021. An integrated analysis of housing and transit affordability in the Chicago Metropolitan Area. *The Geographical Journal*, 187, 110–126. https://doi.org/10.1111/geoj.12377

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69. Yu, X., Wong, M.S., Kwan, M.P., Nichol, J.E., Zhu, R., Heo, J., Chan, P.W., Chin, D.C., Kwok, C.Y.T. and **Kan, Z.**, 2021. Covid-19 infection and mortality: Association with PM2.5 concentration and population density—An exploratory study. *ISPRS International Journal of Geo-Information*, 10(3),123. https://doi.org/10.3390/ijgi10030123
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performance taxis from big trace data. *ISPRS International Journal of Geo-Information*, *6*(5), 134. https://doi.org/10.3390/ijgi6050134

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Automation and Systems, *12*(5), 1110-1117. (*Corresponding author*). https://doi.org/10.1007/s12555-012-0484-4

96. Wang, Z., **Kan, Z.***, Hong, J., et al., 2014. Path optimization based on city intersection turning analysis from floating car data. *Applied Mechanics and Materials*, 577, 1055-1060. Trans Tech Publications. (*Corresponding author*). https://doi.org/10.4028/www.scientific.net/AMM.577.1055

PROJECTS

2027-2030. 城市"人-车-物"活动流的“语义-场景”耦合表征与演化机制研究(Research on “Semantic-Scene” Coupling Representation and Evolution Mechanisms of Urban “Human-Vehicle-Goods” Activity Flows). General Fund. National Natural Science Foundation of China. **PI**.

2026-2028. Repositioning Students as Critical Evaluators: An Integrated Approach to Statistics Attitude Change Through Disciplinary Context and AI Critique. Teaching Development and Language Enhancement Grant (TDLEG) 2025-28. The Chinese University of Hong Kong. **PI**.

2026-2027. From Image to Experience: Modeling Passenger Perception in Indoor Transit Spaces. Direct Grant. The Chinese University of Hong Kong. **PI**.

2025-2027. Urban Intelligence and Analytics Young Scholar Project. 1+1+1 CUHK-CUHK(SZ)-GDST Joint Collaboration Fund. **PI**.

2024-2026. Sensing “flow patterns of activities” in urban road networks. Young Scientists Fund. National Natural Science Foundation of China. **PI**.

2024-2025. GreenScan: Unveiling Urban Greenspace Exposure with Street View and LiDAR for Environmental Health Insights. Strategic Partnership Award for Research Collaboration. **PI**.

2024-2027. Unraveling the complex interplay of objective and perceived greenspace accessibility, greenspace usage patterns, and mental health outcomes in high-density urban environment. Research Grant Council, General Research Fund. **PI**.

2024-2025. Trip purpose sequence inference and prediction by leveraging large geospatial datasets and GeoAI models. Direct Grant. The Chinese University of Hong Kong. **PI**.

2023-2024. Investigating the impacts of the living environment of aged buildings on older residents’ out-of-home activities. Direct Grant. The Chinese University of Hong Kong. **PI**.

2024-2026. Research on spatial clustering method of activity flow in urban road network. Guangdong Provincial Natural Science Foundation. **PI**.

2022-2025. Start-up fund of The Chinese University of Hong Kong. **PI.**

2020-2022. The Exposome and Gene-environment Interactions, RGC Postdoctoral Fellowship Scheme. **PI**.

2027-2028. Developing an interactive flow map for the real-time management of China's new ‘Special Forces’ tourists across the Greater Bay Area. Research Grant Council, General Research Fund. **Co-I**

2023-2024. Vehicle detection and vehicle-kilometrage estimation based on remote sensing technologies. Smart Traffic Fund, Hong Kong Productivity Council and Transport Department. **Co-I**.

2023-2026. Intelligent portrait of urban pedestrian road network based on multi-modal spatio-temporal big data. National Natural Science Foundation of China. **Co-I**.

2020-2023. Multi-scale crowdsourcing perception method for urban space based on spatio-temporal big data. National Natural Science Foundation of China. **Co-I**.

TEACHING

Undergraduate level

Fundamental Statistics for Geographers (GRMD 2102)

Urban Big Data Analysis and Application (GRMD 4502)

Smart City and Governance (GRMD 4503)

Environmental Planning and Assessment (GRMD 4204)

Final Year Thesis

Graduate level

Statistical Applications in Geography (GRMD 5110)

Statistical Analysis of Geographical Data (GISM 5060)

Master Thesis

Research Seminar (GRMD 5001- 5002. 2022-2023)

PRESENTATIONS & INVITED TALKS

2026. 10. Spatiotemporal Patterns of Older Adults' Travel Exposure: Evidence from Smart Card Data. Tsinghua Aging Forum 2026 & the 3rd Deans' Forum on Social Sciences. Tsinghua University.

2026. 9. **Guest lecture**. Spatiotemporal Big Data. CCGL9074 Unleashing the Power of Big Data in Global Cities. The University of Hong Kong.

2026.8. A Network-Based Approach to Understand the Risk of Mobility-related Social Exclusion in Spatiotemporal Activates. IGU Regional Conference. Istanbul, Turkey.

2025. 12. **Invited talk**. Urban Trajectory-Based Framework for Linking Mobility, Environment Exposure and Mental health. The 9th IEEE International Conference on Ubiquitous Positioning, Indoor Navigation, and Location Based Service. Shenzhen, China.

2025.11. Mobile environment perception based on spatial network flow. The 20th Annual Conference on Geographic Information Science Theory and Methodology. Xiamen, China.

2025. 10. A Trajectory Mining Framework for Exploring Individual Concurrent

Environmental Exposure and Its Association with Mental Health. 2025 International Workshop on Geography and Sustainability Geography and Sustainable Development: From a Transdisciplinary Perspective, Xi'an, China.

2025. 8. Sensing Urban Activities through Spatial Network Flows (基于空间流网络的城市活动感知). The 2nd National Geoinformation Conference, Chengdu, China.

2025.4 **Invited talk**. From Sensing to Generation: Understanding Human Mobility in Spatial Networks Using GPS Trajectory Data. Forum of GeoAI for the Greater Bay Area: Shaping the Future of Smart Infrastructure and Urban Development. The Chinese University of Hong Kong (Shenzhen). Shenzhen, China.

2025.3. **Panelist**. Symposium on Geospatial Approaches to Pressing Grand Challenges: Global Pandemics, Climate Change, and Food Security - International Geospatial Health Research Network (IGHRN). Annual Meeting of American Association of Geographers. Detroit, USA.

2025.3. Understanding Spatiotemporal Activities and Traffic Congestion Exposure Using Individual Trajectory Data and Geospatial Analysis. Annual Meeting of American Association of Geographers. Detroit, USA.

2024. 12. **Panelist**. International Geospatial Health Research Network (IGHRN) Panel. 2nd Youth Innovation Forum on Digital Earth. The Chinese University of Hong Kong, Hong Kong, China.

2024. 12. Spatiotemporal activities and traffic congestion exposure: A study using individual trajectory data. 2nd Youth Innovation Forum on Digital Earth. The Chinese University of Hong Kong, Hong Kong, China.

2024. 11. **Invited talk**. Uncovering travel communities among older adults via smart card data analysis, in Climate Change, GeoAI, and Urban Health Workshop. Tongji University, Shanghai, China.

2024.11. Intelligent perception of individual spatiotemporal activities and assessment of traffic congestion exposure (个体时空活动智能感知与交通拥堵暴露评估). 2024 GBA conference on surveying and remote sensing. Shenzhen University, Shenzhen, China.

2024. 11. Spatiotemporal activities and traffic congestion exposure: A study using individual trajectory Data. In Session "Smart Sustainable Cities in the GBA and Beyond" of Hong Kong Geography Day. The Chinese University of Hong Kong.

2024. 10. **Invited talk**. Understanding spatiotemporal activities and traffic congestion exposure using geospatial data analytics. In Session "Urban Analytics: Leveraging Big Data and GeoAI for Sustainable Cities" of the Fifth Spatial Data Science Symposium. (Vitrual).

2024. 10. Research on traffic congestion exposure based on individual trajectory big data (基于个体轨迹大数据的交通拥堵暴露研究). China Geography Conference, Nanjing, China.

2024.7. **Invited talk**. Urban environmental flow perception supported by geospatial analysis methods (空间分析方法支持下的城市环境 "流"感知). Wuhan University.

2024. Investigating individuals' concurrent Exposures to Noise, Air Pollution and

Greenspace: using portable environmental sensors in UNU Macau AI Conference 2024, United Nations University International Institute for Software Technology.

2024. Individuals' concurrent exposures to noise, air pollution and greenspace: a mobility-based study, in 2024 AAG Annual Meeting of American Association of Geographers. Hawaii, USA.

2024. **Invited talk.** Geospatial data analysis methods for environmental health in The Chinese University of Hong Kong (CUHK)-Shanghai University of Finance and Economics (SUFE) Research Workshop.

2024. **Invited talk**. Investigating spatial patterns and relationships using real-time GPS and mobile sensing data *Research Workshop on Geoinformatics and Urban Sustainability*, Hong Kong. April 2024.

2024. **Invited talk**. Concurrent Exposures to Air Pollution, Noise, and Greenspace: Investigating Spatial Patterns and Relationships Using Real-Time GPS and Mobile Sensing Data. Workshop on Utilising Geospatial Big Data for Healthy and Sustainable Cities. United Nations University (Macau).

2023. Understanding traffic congestion patterns using Ripley's K function for network-constrained flows. The 27th International Conference of Hong Kong Society for Transportation Studies. Hong Kong.

2023. **Panelist**. Individuals' Concurrent Exposures to Noise, Air Pollution and Greenspace: A Mobility-Based Study. The 1st International Geospatial Health Research Network Workshop. Institute of Space and Earth Information Science & Institute of Future Cities. The Chinese University of Hong Kong

2023. **Invited talk.** Geospatial data analysis methods for estimating urban traffic emissions. CUHK-Exeter ENSURE Mini-Symposium on global food, water, and environmental sustainability. The Chinese University of Hong Kong.

2023. How individual mobility affects COVID-19 risk exposure: A study using a spatial network framework." 2023 AAG Annual Meeting, Denver, Colorado. March 23-27, 2023.

2023. **Panelist.** How individual mobility affects COVID-19 risk exposure: A study using a spatial network framework. Center of Geographic Analysis (CGA) Conference, Harvard University.

2023. **Invited talk**. Sensing urban flows based on geospatial analytical techniques. *State key laboratory of information engineering in surveying mapping and remote sensing*, Wuhan University.

2023. **Invited talk**. Exploring Human-Environment Interactions for Sustainable City Development: A Geospatial Data Analytical Approach. *Department of Geography*, National University of Singapore.

2022. How Mobility Affects Covid-19 Risk Exposure: A Study Using Individual-Level GPS Tracking Data. AAG Annual Meeting, Virtual, Feb 25 - March 1, 2022.

2021. **Guest Speaker**. Research on the space-time pattern of COVID-19 transmission and associated built environment characteristics in Hong Kong. *Institute of Space and Earth Information Science (ISEIS) Seminar*. The Chinese University of Hong Kong

2021. Exploring the Space-Time Patterns of COVID-19 Transmission Risk and Their Associations with Different Built Environment Factors in Hong Kong. *Annual Meeting of American Association of Geographers (Online)*, Seattle, WA. 2021

2019. Traffic Congestion Analysis at the Turn Level Using Taxis' GPS Trajectory Data. *International Conference on Urban Informatics*, Hong Kong Polytechnic University, Hong Kong. 2019

2018. Estimating and Visualizing Vehicles' Fuel Consumption/ Emissions from GPS Trace Big Data Based on Activity Analysis. *Annual Meeting of American Association of Geographers*, New Orleans, LA. 2018

2017. Identify Refueling/Fuel Consumption and Estimating Emissions by Spatial-Temporal GIS. *Conference of Asia GIS*, Hong Kong University, Hong Kong. 2017

2016. A Space-Time Path Supported Approaches for Fuel Consumption/Emissions Estimation. *Annual Meeting of Theories and Methods of Geographic Information Science*. Shenzhen, China. 2016

PROFESSIONAL SERVICES

Editorial Board. Humanities and Social Sciences Communications; Scientific Reports.

Board Member. Health and Medical Geography Specialty Group of American Association of Geographers (2024-2026).

Member. Spatial and Transport Planning Division of the 3rd WTC Academic Sub Committee. World Transport Convention.

Board Member. International Geospatial Health Research Networks.

Guest Editor:

Special Issue "Geospatial Data and Methods for Sustainable Mobility and Urban Accessibility" in *Sustainability.*

Manuscript Reviewer:

Geographical Analysis, Travel Behavior and Society, International Journal of Geographical Information Science, Cartography and Geographic Information Science, Transportation Research Part C: Emerging Technologies, PLOS One, Transactions in GIS, Applied Geography, Journal of Transport Geography, Future Generation Computer Systems, IEEE Access, IEEE Transactions on Intelligent Transportation Systems, IEEE Transactions on Computational Social Systems, Journal of Intelligent Transportation Systems: Technology, Planning, and Operations, Physica A: Statistical Mechanics and its Applications, Science of the Total Environment, Atmosphere, Sustainable Cities and Society.

Conference session and organization:

Session organizer. Symposium on Geospatial Approaches to Pressing Grand Challenges: Global Pandemic, Climate Change, and Food Security: Promoting Urban Sustainability through Geospatial Analytics. Annual Meeting of American Association of Geographers.

Detroit, USA. (2025. 3)

Session Co-Chair. Geospatial Intelligence and Environmental Health. 2nd Youth Innovation Forum on Digital Earth. The Chinese University of Hong Kong, Hong Kong, China. (2024. 12)

Session Moderator Workshop (Session B) in Climate Change, GeoAI, and Urban Health Workshop. Tongji University, Shanghai, China. (2024.11)

Session Chair. "Smart Sustainable Cities in the GBA and Beyond" of Hong Kong Geography Day. The Chinese University of Hong Kong (2024.11).

Programme Committee Member, The Chinese University of Hong Kong (CUHK)-Shanghai University of Finance and Economics (SUFE) Research Workshop organized by Institute of Space and Earth Information Science (ISEIS), CUHK and Institute of Future Cities (IOFC), CUHK, Hong Kong, 2024.

Chair of Session: Session F1: Transport and Smart Cities-3, The 27th International Conference of Hong Kong Society for Transportation Studies organized by Hong Kong Society for Transportation Studies, Hong Kong, 2023.

Organizing committee. The 1st International Geospatial Health Research Network Workshop. Institute of Space and Earth Information Science & Institute of Future Cities. The Chinese University of Hong Kong, 2023.

Session Chair. Transport and Smart Cities-3. The 27th International Conference of Hong Kong Society for Transportation Studies. Hong Kong 2023.

Session Chair. Symposium on Geospatial Approaches to Pressing Grand Challenges:Global Pandemics, Climate Change, and Food Security: Characterizingthe Impact from the COVID-19 Global Pandemic. *Annual Meeting of American Association of Geographers*, March 2023, Denver.

Session Organizer, Mobile Sensing and Spatiotemporal Analysis of Human Behavior and Environmental Health, A*nnual Meeting of American Association of Geographers* (*Online*), February 2022, New York.

Session Chair, Spatial Context, Human Activities and Space-Time Transmission of COVID-19, *Annual Meeting of American Association of Geographers* (*Online*), April 2021, Seattle, WA.

Session Organizer, Spatializing Social Injustice, *Annual Meeting of American Association of Geographers* (*Online*), April 2021, Seattle, WA.

Session Convener, Spatiotemporal Behavior and Environmental Health Perception, *16th Space Behavior and Planning Research Conference (Online)*, December 2020, Xiamen, China.