Curriculum Vitae

Qunshan Zhao

Contact Details

Urban Big Data Centre
School of Social & Political Sciences
University of Glasgow
7 Lilybank Gardens
Glasgow, G12 8RZ, UK
Phone: +44 (0)1413308534
Email: Qunshan.Zhao@glasgow.ac.uk
Staff Website: https://www.gla.ac.uk/schools/socialpolitical/staff/qunshanzhao/
Personal Website: https://qunshanzhao.github.io/

Education

2017 Ph.D. Geography, *Arizona State University*, School of Geographical Sciences and Urban Planning, Tempe, AZ, USA
American Association of Geographers "J. Warren Nystrom" Award for the Most Outstanding Research Paper Based Upon a Recent Dissertation (https://www.aag.org/award-grant/nystrom/).

2015 M.A. Geography, *Arizona State University*, School of Geographical Sciences and Urban Planning, Tempe, AZ, USA

2013 B.E. Remote Sensing Science and Technology, *Wuhan University*, School of Remote Sensing and Information Engineering, Wuhan, Hubei, China

Academic Appointments

2024-present **Professor in Urban Analytics**, Urban Big Data Centre (UBDC), School of Social and Political Sciences, University of Glasgow, UK

2025-present **Deputy Director**, Urban Big Data Centre (UBDC), University of Glasgow, UK

2026-present **Visiting Professor**, School of Geography, University College Dublin, Ireland

2020-2025 **Associate Director**, Urban Big Data Centre (UBDC), University of Glasgow, UK

2020-2025 **Visiting Scholar and PhD Supervisor**, School of Engineering, University of Edinburgh, UK

2022-2024 **Senior Lecturer (Associate Professor) in Urban Analytics**, Urban Big Data Centre (UBDC), School of Social and Political Sciences, University of Glasgow, UK

2019-2022 **Lecturer (Assistant Professor) in Urban Analytics**, Urban Big Data Centre (UBDC), School of Social and Political Sciences, University of Glasgow, UK

2017-2019 **Postdoctoral Research Associate**, Knowledge Exchange for Resilience (KER) and Spatial Analysis Research Center (SPARC), Arizona State University, USA

2013-2017 **Research Associate, Teaching Assistant, and Instructor**, School of Geographical Sciences and Urban Planning, Arizona State University, USA

Research Interests

Empirical: Healthy Housing and Indoor Environments, Building Energy Efficiency and Fuel Poverty, Just Net-Zero Transition, Health Equity and the Societal Determinants of Health, Climate Change Adaptation and Urban Heat, Electric Vehicles and Infrastructure Planning, Human Mobility and Activity Space, Urban Green Infrastructure.

Methodology: GIScience (Geographic Information Systems, Remote Sensing, Spatial Analysis), Machine Learning/Statistics/Deep Learning/Foundational Models, Operations Research, Urban Big Data Analytics, Urban Climate Modeling and Instrumentation, Low-cost Sensor Network Development.

Study Area: United Kingdom, United States, China, Nigeria, Kenya, Ghana, Nepal.

Publications

Refereed Journal Articles

(Total: **60**; First author: **9**; Corresponding author*: **22**)

2026

60. Ting, H., Wu, M., Chen, Y., Wang, M., Zhu, M., Feng, Z., **Zhao, Q.**, Li, F., & Doan, Q. C. (2026). GeoAI for Urban Analytics: Opportunities and Challenges. Accepted to Big Earth Data.

59. Feng, Z., **Zhao, Q.***, & Heppenstall, A. (2027). An integrated simulation-optimisation framework for future public electric vehicle charger deployment. *Computers, Environment and Urban Systems*, *131*, 102539. https://doi.org/10.1016/j.compenvurbsys.2026.102539

58. Cheng, H., Liu, A., Cheng, Q., **Zhao, Q.**, Zhu, D., & Wang, S. (2026). GeoStructCap: Zero-shot remote sensing image captioning via structured hierarchical visual perception simulation. *International Journal of Digital Earth*, *19*(1), 2688614. https://doi.org/10.1080/17538947.2026.2688614

57. Feng, Z., **Zhao, Q.***, & Heppenstall, A. (2026). Replicating the behaviour of electric vehicle drivers using an agent-based reinforcement learning model. *Environment and Planning B: Urban Analytics and City Science*, 23998083261455937. https://doi.org/10.1177/23998083261455937

56. Li, Q., & **Zhao, Q**.* (2026). Large-scale 3D building datasets constructed from airborne LiDAR point clouds in Glasgow, UK. *Environment and Planning B: Urban Analytics and City Science*, 23998083261452342. https://doi.org/10.1177/23998083261452342

55. Li, Y., **Zhao, Q.***, & Wang, M.* (2026). Zero-Shot Traffic Flow Prediction with Large Language Models: A Comparison with Deep Learning Approaches. Accepted to Scientific Reports.

54. Feng, Z., **Zhao, Q.***, & Heppenstall, A. (2026). Exploring the influencing factors of public electric vehicle charger usage in Great Britain. *Journal of Transport Geography*, *134*, 104667. https://doi.org/10.1016/j.jtrangeo.2026.104667. News coverage: UoG.

53. Ou, Y., Bailey, N., McArthur, D. P., & **Zhao, Q.** (2026). Willingness-to-pay for energy efficient homes: New insights from the 2022 energy crisis in the United Kingdom. *Energy Research & Social Science*, *135*, 104700. https://doi.org/10.1016/j.erss.2026.104700

52. Tian, Y., **Zhao, Q.**, Zheng, Z., & Wang, P. (2026). Evaluating urban ventilation corridor through mobile air quality monitoring and environmental justice. *Applied Geography*, *190*, 103987. https://doi.org/10.1016/j.apgeog.2026.103987

51. Sun, J., Cao, Y., Grépin, K. A., Li, T., Chen, H., **Zhao, Q.**, & Chi, P. C. (2026). Geospatial analysis of COVID-19 vaccine access in Kenya: The interplay of travel time, perceived availability, and vaccine uptake. *Journal of Global Health*, *16*, 04143. https://doi.org/10.7189/jogh.16.04143

50. Tu, S., Cheng, Q., **Zhao, Q.**, Du, Y., & Cheng, H. (2026). Weakly supervised segmentation with cross-feature learning for fine-scale land cover map updating. *Geo-Spatial Information Science*, *0*(0), 1–26. https://doi.org/10.1080/10095020.2026.2615564

49. Jia, S., Yoo, C., Ou, Y., Chen, G., & **Zhao, Q.** (2026). From Heat Maps to Cooling Actions: AI-Driven Citywide Hourly Mapping of Thermal Stress, Drivers, and Targeted Cooling. *Sustainable Cities and Society*, 107275. https://doi.org/10.1016/j.scs.2026.107275

48. Sun, M., Hou, C., Li, Q., Zhang, F., Bardhan, R., & **Zhao, Q.*** (2026). Deciphering exterior: Building energy efficiency prediction with emerging urban big data. *Npj Urban Sustainability*. https://doi.org/10.1038/s42949-026-00348-7. News coverage: UoG.

47. Pei, Y., **Zhao, Q.**, Wang, J., Zheng, Z., Liu, X., Huang, X., Zhang, Y., & Wan, Y. (2026). Three-dimensional time series building reconstruction framework in global south based on openly available satellite data. International Journal of Applied Earth Observation and Geoinformation, 146, 105160. https://doi.org/10.1016/j.jag.2026.105160

46. Feng, Z., **Zhao, Q.***, & Heppenstall, A. (2026). Using agent-based models to simulate the electric vehicle driving behaviours in Great Britain. Cities, 172, 106864. https://doi.org/10.1016/j.cities.2026.106864. News coverage: UoG.

45. Biakhmetov, B., Tasbolat, G., Li, Y., **Zhao, Q.**, Dostiyarov, A., Flynn, D., Jiang, P., & You, S. (2026). Machine Learning–Based Multi-Objective Optimisation of Low-Carbon and Profitable Hydrogen and Diesel Production from Non-Recycled Municipal Plastic Waste: An Integrated Life Cycle Assessment and Cost–Benefit Analysis. Carbon Capture Science & Technology, 100586. https://doi.org/10.1016/j.ccst.2026.100586

44. Liu, N., **Zhao, Q.**, Williams, R., Duan, S.-B., Sun, Y., & Barrett, B. (2026). Ensemble modelling based on transfer learning for enhancing crop mapping through synergistic integration of InSAR coherence and multispectral satellite data. *Computers and Electronics in Agriculture*, *242*, 111332. https://doi.org/10.1016/j.compag.2025.111332

43. Guo, Z., Shi, X., Zhang, D., & **Zhao, Q.** (2026). Effects of long-term wetland variations on flood risk assessments in the Yangtze River Basin. *Environmental Impact Assessment Review*, *116*, 108123. https://doi.org/10.1016/j.eiar.2025.108123

42. Cheng, Q., Ling, J., Du, Y., & **Zhao, Q.** (2026). Toward comprehensive traffic scene understanding: A benchmark and detector for traffic object detection in smart city surveillance. *Geo-Spatial Information Science*, *29*(4), 2369–2392. https://doi.org/10.1080/10095020.2025.2542964

2025

41. Sun, M., Pan, J., **Zhao, Q.**, & Bardhan, R. (2025). Heat stress dichotomy: Long-term adaptation and acute shock in London domestic environments. Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 383(2308), 20240567. https://doi.org/10.1098/rsta.2024.0567 (UoG News)

40. Zhou, X., Wen, Y., Shao, Z., Li, W., Hu, G., Xie, X., Li, R., & **Zhao, Q.** (2025). Identifying the place without text annotations: An assembled neural network framework for content-based raster map retrieval with cartographical morphological pattern. *Geo-Spatial Information Science*, *0*(0), 1–17. https://doi.org/10.1080/10095020.2025.2522146

39. Liu, M., Gou, Z., & **Zhao, Q.** (2025). Enhancing building performance evaluation through Google street View: A multimodal transfer learning framework. *Energy and Buildings*, *344*, 115968. https://doi.org/10.1016/j.enbuild.2025.115968

38. Liu, N., **Zhao, Q.**, Williams, R., Duan, S.-B., Liu, X., & Barrett, B. (2025). Enhanced Crop Mapping Using Polarimetric SAR Features and Time Series Deep Learning: A Case Study in Bei'an, China. *IEEE Transactions on Geoscience and Remote Sensing*, *63*, 1–17. https://doi.org/10.1109/TGRS.2025.3544339

37. Cao, Y., Li, T., Chen, H., **Zhao, Q.**, Sun, J., Grépin, K. A., & Kang, J.-Y. (2025). Evaluating geographic accessibility to COVID-19 vaccination across 54 countries/regions. *BMJ Global Health*, *10*(2). https://doi.org/10.1136/bmjgh-2024-017761 (UoG News)

36. Li, Y., **Zhao, Q**.*, & Wang, M.* (2025). High-resolution traffic flow data from the urban traffic control system in Glasgow. *Scientific Data*, *12*(1), 253. https://doi.org/10.1038/s41597-025-04494-y

35. Ou, Y., Bailey, N., McArthur, D. P., & **Zhao, Q.** (2025). The price premium of residential energy performance certificates: A scoping review of the European literature. *Energy and Buildings*, *332*, 115377. https://doi.org/10.1016/j.enbuild.2025.115377

34. Li, X., Qiao, S., Rybarczyk, G., & **Zhao, Q.** (2025). E-scooter safety under

scrutiny: Examining crash patterns and injuries in the UK. *Journal of Safety Research*, *92*, 292–305. https://doi.org/10.1016/j.jsr.2024.11.026

33. Biakhmetov, B., Li, Y., **Zhao, Q.**, Dostiyarov, A., Flynn, D., & You, S. (2025). Transportation and process modelling-assisted techno-economic assessment of resource recovery from non-recycled municipal plastic waste. *Energy Conversion and Management*, *324*, 119273. https://doi.org/10.1016/j.enconman.2024.119273

2024

32. Shin, H., Silverman, E., Li, Y., Tian, Y., & **Zhao, Q.** (2024). Did the Implementation of Low Emission Zone in Glasgow Change the Traffic Flow and Air Quality? *Findings*. https://doi.org/10.32866/001c.123382 (This work has been extensively reported by major media outlets such as **BBC Radio Scotland**, Heart Radio, **the Scotsman**, the Glasgow Chamber of Commerce, the Glasgow City of Science and Innovation, and many others. It has contributed to the ongoing discussion of Glasgow and Scotland LEZ benefits)

31. O'Rourke, B., **Zhao, Q.**, Dayán-Fernández, A., Dickson, E., Wang, R., Wang, M., Zhang, L., & Imran, M. (2024). Integrated geospatial methods for multilingual cities: Combining GPS, electronically activated recorder, and map-based ethnographic interviews. *Research Methods in Applied Linguistics*, *3*(3), 100147. https://doi.org/10.1016/j.rmal.2024.100147

30. Li, Y., **Zhao, Q.***, & Wang, M.* (2024). Understanding urban traffic flows in response to COVID-19 pandemic with emerging urban big data in Glasgow. *Cities*, *154*, 105381. https://doi.org/10.1016/j.cities.2024.105381

29. Guo, Z., **Zhao, Q.**, & Shi, X. (2024). A long-term (1984–2021) wetland classification dataset for the Yangtze River Basin from continuous Landsat image collections. *Total Environment Advances*, 200111. https://doi.org/10.1016/j.teadva.2024.200111

28. Biakhmetov, B., Li, Y., **Zhao, Q.**, Ok, Y. S., Dostiyarov, A., Park, Y.-K., Flynn, D., & You, S. (2024). Comparing carbon-saving potential of the pyrolysis of non-recycled municipal plastic waste: Influences of system scales and end products. *Journal of Cleaner Production*, 469, 143140. https://doi.org/10.1016/j.jclepro.2024.143140

2023

27. Park, Y.*, **Zhao, Q.***, Guldmann, J., & Wentz, E. (2023). Quantifying the Cumulative Cooling Effects of 3D Building and Tree Shades with High Resolution Thermal Imagery in a Hot Arid Urban Climate." *Landscape and Urban Planning*, 240, 104874. https://doi.org/10.1016/j.landurbplan.2023.104874

26. Liu, N., **Zhao, Q.**, Williams, R., & Barrett, B. (2023). Enhanced crop classification through integrated optical and SAR data: A deep learning approach for multi-source image fusion." *International Journal of Remote Sensing*, *0*(0), 1–29. https://doi.org/10.1080/01431161.2023.2232552

25. Hao, T., **Zhao, Q.***, & Huang, J.* (2023). Optimization of tree locations to reduce human heat stress in an urban park." *Urban Forestry & Urban Greening*, *86*, 128017. https://doi.org/10.1016/j.ufug.2023.128017 (Finalist for RTPI Awards for Research Excellence in the **Early Career Researcher**

Award category for Dr Tongping Hao)

24. Sinclair, M., Maadi, S., **Zhao, Q.**, Hong, J., Ghermandi, A., & Bailey, N. (2023). Assessing the socio-demographic representativeness of mobile phone application data. *Applied Geography*, *158*, 102997. https://doi.org/10.1016/j.apgeog.2023.102997

23. Chen, H., Cao, Y., Feng, L., **Zhao, Q.**, & Torres, J. R. V. (2023). Understanding the spatial heterogeneity of COVID-19 vaccination uptake in England. BMC Public Health, 23(1), Article 1. https://doi.org/10.1186/s12889-023-15801-w

2022

22. Sun, M., Han, C., Nie, Q., Xu, J., Zhang, F.*, & **Zhao, Q.*** (2022). Understanding building energy efficiency with administrative and emerging urban big data by deep learning in Glasgow. *Energy and Buildings*, *273*, 112331. https://doi.org/10.1016/j.enbuild.2022.112331 (NewScientist: News)

21. Feng, X., Barcelos, G., Gaboardi, J. D., Knaap, E., Wei, R., Wolf, L. J., **Zhao, Q.**, & Rey, S. J. (2022). spopt: A python package for solving spatial optimization problems in PySAL. *Journal of Open Source Software*, *7*(74), 3330. https://doi.org/10.21105/joss.03330 (Example1)

20. Li, Y., **Zhao, Q.**, & Zhong, C. (2022). GIS and urban data science. *Annals of GIS*, *0*(0), 1–4. https://doi.org/10.1080/19475683.2022.2070969

19. Yabiku, S. T., Sullivan, A., York, A. M., **Zhao, Q.**, Glick, J. E., Hall, S. J., Ghimire, D. J., & An, L. (2022). Drivers of prohibited natural resource collection in Chitwan National Park, Nepal. *Environmental Conservation*, *49*(2), 114–121. https://doi.org/10.1017/S0376892922000121

2021

18. **Zhao, Q.***, Li, Z., Shah, D., Fischer, H., Solis, P., & Wentz, E. A. (2021) Understanding the interaction between human activities and physical health under extreme heat environment in Phoenix, Arizona. *Health and Place*, 102691. https://doi.org/10.1016/j.healthplace.2021.102691

17. Yang, J., Shi, Q., Menenti, M., Wong, M. S., Wu, Z., **Zhao, Q.**, Abbas, S., & Xu, Y. (2021). Observing the impact of urban morphology and building geometry on thermal environment by high spatial resolution thermal images. *Urban Climate*, *39*, 100937. https://doi.org/10.1016/j.uclim.2021.100937

16. Beairsto, J., Tian, Y., Zheng, L., **Zhao, Q.***, & Hong, J. (2021). Identifying locations for new bike-sharing stations in Glasgow: an analysis of spatial equity and demand factors. *Annals of GIS*. https://doi.org/10.1080/19475683.2021.1936172 (Second most downloaded paper award for papers published in Annals of GIS in 2022)

15. Wang, C., Turner, V. K., Wentz, E. A., **Zhao, Q.**, & Myint, S. W. (2021). Optimization of residential green space for environmental sustainability and property appreciation in metropolitan Phoenix, Arizona. *Science of Total Environment*, *763*, 144605. https://doi.org/10.1016/j.scitotenv.2020.144605

2020

14. Dai, J., Roberts, D. A., Stow, D. A., An, L., & **Zhao, Q.** (2020). Green Vegetation Cover Has Steadily Increased Since Establishment of Community Forests in Western Chitwan, Nepal. *Remote Sensing*, 12(24), 4071.

https://doi.org/10.3390/rs12244071

13. Wu, Y., Zhan, Q., & **Zhao, Q.** (2020). Long-term air pollution exposure impact on COVID-19 morbidity in China. *Aerosol and Air Quality Research*, 20. https://doi.org/10.4209/aaqr.2020.07.0413

12. **Zhao, Q.***, Dickson, C., Thornton, J., Solis, P., & Wentz, E. A. (2020). Articulating strategies to address heat resilience using spatial optimization and temporal analysis of utility assistance data of the Salvation Army Metro Phoenix. *Applied Geography*, *122*, 102241. https://doi.org/10.1016/j.apgeog.2020.102241

11. **Zhao, Q.*** & Wentz, E. A. (2020) Editorial for the Special Issue: "Remote Sensing of Urban Ecology and Sustainability." *Remote Sensing*, 12(3), 443. https://doi.org/10.3390/rs12030443

10. Wang, Z., Fan, C., **Zhao, Q.**, & Myint, S. W. (2020) A geographically weighted regression approach to understanding urbanization impacts on urban warming and cooling: A case study of Las Vegas. *Remote Sensing*, 12(2), 222. https://doi.org/10.3390/rs12020222

2019 9. Wang, C., Li, Y., Myint, S. W., **Zhao, Q.**, & Wentz, E. A. (2019). Impacts of spatial clustering of urban land cover on land surface temperature across Köppen climate zones in the contiguous United States. *Landscape and Urban Planning*, 192, 103668. https://doi.org/10.1016/j.landurbplan.2019.103668

8. **Zhao, Q.***, Kelley, S., Xiao, F., & Kuby, M. J. (2019). A multi-scale framework for fuel station location: from highways to street intersections. *Transportation Research Part D: Transport and Environment*, 74, 48-64. https://doi.org/10.1016/j.trd.2019.07.018

2018 7. **Zhao, Q.***, Sailor, D. J., & Wentz, E. A. (2018). Impact of tree locations and arrangements on outdoor microclimates and human thermal comfort in an urban residential environment. *Urban Forestry & Urban Greening*, 32, 81-91. https://doi.org/10.1016/j.ufug.2018.03.022 (**"J. Warren Nystrom" Award, News**)

6. **Zhao, Q.***, Yang, J., Wang, Z., & Wentz, E. A. (2018). Assessing the cooling benefits of tree shade by an outdoor urban physical scale model at Tempe, AZ. *Urban Science*, 2(1), 4. https://doi.org/10.3390/urbansci2010004

2017 5. Yabiku, S. T, Glick, J. E., Wentz, E. A., Ghimire, D., & **Zhao, Q.** (2017). Comparing paper and tablet modes of retrospective activity space data collection. *Survey Research Methods*, 11(3), 329-344. https://doi.org/10.18148/srm/2017.v11i3.6741

4. Kuai, X., & **Zhao, Q.** (2017). Examining healthy food accessibility and disparity in Baton Rouge, Louisiana. *Annals of GIS*, 23(2), 103-116. https://doi.org/10.1080/19475683.2017.1304448

3. **Zhao, Q.***, Wentz, E. A., & Murray, A. T. (2017). Tree shade coverage optimization in an urban residential environment. *Building and Environment*, 115, 269-280. https://doi.org/10.1016/j.buildenv.2017.01.036

2016 2. **Zhao, Q.***, & Wentz, E. A. (2016). A MODIS/ASTER Airborne Simulator

(MASTER) Imagery for Urban Heat Island Research. *Data*, 1(1), 7. https://doi.org/10.3390/data1010007

2015 1. **Zhao, Q.***, Myint, S. W., Wentz, E. A., & Fan, C. (2015). Rooftop surface temperature analysis in an urban residential environment. *Remote Sensing*, 7(9), 12135-12159. https://doi.org/10.3390/rs70912135

Submitted Journal Articles

2026 Albuquerque, J. P. de, Abascal, A., Alugbin, O., Amole, T., Baruwa, K., Cheruiyot, C., Mitham-Clarke, A., Dixon, D., Du, X., Elias, P., Elsey, H., Engstrom, R., Gielink, G., Girgin, S., Hafner, S., Judith, E., Pajarito-Grajales, D., Kabaria, C., Kuffer, M., … Zhu, M. (2026). *Co-creating data ecosystems with urban informal communities for justice and transformation*. Research Square. https://doi.org/10.21203/rs.3.rs-8927918/v1. Submitted to Nature Communications.

Hafner, S., **Zhao, Q.**, Alugbin, B., Baruwa, K., Cheruiyot, C., Da'u, S. S., Du, X., Elias, P., Elsey, H., Engstrom, R., Girgin, S., Grajales, D. F. P., Judith, E., Kabaria, C., Kuffer, M., Odulana, O., Onyambu, F. C., Shonowo, A., Thomson, D. R., … Albuquerque, J. P. de. (2025). *Towards Modeling Road Access Deprivation in Sub-Saharan Africa Based on a New Accessibility Metric and Road Quality* (arXiv:2512.02190). arXiv. https://doi.org/10.48550/arXiv.2512.02190.

Clarke, A., Grajales, D. F. P., Girgin, S., Du, X., Hafner, S., Onyambu, F. C., Baruwa, K., **Zhao, Q.**, Albuquerque, J. P. de. (2026). The IDEAMAPS Data Ecosystem Platform: Enabling the Participatory Analytics of Urban Deprivation. Submitted to Environment and Planning B: Urban Analytics and City Science.

Wang, P., Ye, T., Maretto, R. V., Kuffer, M., & **Zhao, Q.** (2026). A Multimodal Framework for Informal Settlement Screening Using Satellite and Street-Level Imagery: Evidence from Nairobi, Kenya.

Zhu, M., **Zhao, Q.**, & Jin, J. (2026). Hidden Vulnerability and Heat-Triggered Decompensation: Rethinking Urban Overheating Beyond Clinical Risk. Submitted to Urban Climate.

Zhang, W., Zhong, C., Law, S., Onyambu, F., Engstrom, R., **Zhao, Q.**, & Pelling, M. (2026). Mapping the margins: Street view detection of visible waste as a proxy for sanitation inequality in Nairobi. Submitted to Applied Geography.

Park, Y., **Zhao, Q.**, Oh, J., Kim, D., Chen, Y., & Yun, M. (2026). Is Shade a Marker of Privilege? Assessing Spatiotemporal Inequality in Ground and Street Shade Access across U.S. Cities. Submitted to Landscape and Urban Planning.

Ou, Y., Bailey, N., McArthur, D. P., & **Zhao, Q.** (2026). Heterogeneous Effects of Home Energy Efficiency in the UK Housing Market: Evidence from Causal Machine Learning Approaches. Submitted to Energy Economics.

Guo, Z., Shi, X., **Zhao, Q.**, Chang, W., Wang, D., & Li, Y. (2026). Future flood risk assessments in the Middle-Lower Yangtze River Basin under climate and socio-economic scenarios.

Xu, G., Yu, D., Zheng, J., Dou, M., Tu, Y., **Zhao, Q.**, Li, Z., & Jiao, L. (2026). Global Cities Sprawl Outward and Densify Inward Evidenced by Urban Land Density Contours.

Refereed Book and Book Chapter

2026 Huang, X., & **Zhao, Q.** (2026). Heatwaves. In Data-Driven Earth Observation for Disaster Management (pp. 167–179). Elsevier. https://doi.org/10.1016/B978-0-443-33803-8.00023-8

2023 LIPIcs, Volume 277, GIScience 2023, Complete Volume. (2023). In R. Beecham, J. A. Long, D. Smith, **Q. Zhao**, & S. Wise (Eds.), *12th International Conference on Geographic Information Science (GIScience 2023)* (Vol. 277). Schloss Dagstuhl – Leibniz-Zentrum für Informatik. https://drops.dagstuhl.de/opus/volltexte/2023/18894

2021 Sarim, M., **Zhao, Q.**, & Bailey, N. Citizen Mobility and the Growth of Infections During the COVID-19 Pandemic with the Effects of Government Restrictions in Western Europe." In S.-L. Shaw & D. Sui (Eds.), Mapping COVID-19 in Space and Time: Understanding the Spatial and Temporal Dynamics of a Global Pandemic (pp. 279–294). Springer International Publishing. https://doi.org/10.1007/978-3-030-72808-3_14

Refereed Conference Proceedings

(Total: **33**; First author: **6**)

2026 33. Feng, Z., **Zhao, Q.**, & Heppenstall, A. (2026). Evaluating RL and Rule-Based Agents for Replicating Electric Vehicle Charging Behaviours. In H. Verhagen, E. Chappin, & G. Scholz (Eds.), Advances in Social Simulation (pp. 137–146). Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-31712-4_10

32. Shonowo, O. A., Du, X., Pajarito Grajales, D., Hafner, S., Porto de Albuquerque, J., **Zhao, Q.**, Elias, P., Baruwa, K., Odulana, O., Saad, S., Amole, T. G., Olusegun, S. A., & Fernandez-Marquez, J. L. (2026). Turning Geospatial Data into Planning Decisions: Evaluating a Participatory Accessibility Model for Urban Drinking Water. *AGILE: GIScience Series*, *7*, 1–7. https://doi.org/10.5194/agile-giss-7-42-2026

2025 31. Feng, Z., **Zhao, Q.**, & Heppenstall, A. (2025, June 19). Exploring the Influencing Factors of Public Electric Vehicle Charger Usage in Great Britain. *The CUPUM 2025 Conference Proceedings*. CUPUM 2025, London, United Kingdom. https://osf.io/s5d32

30. Li, Y., **Zhao, Q.**, & Wang, M. (2025, June 19). Comparative Analysis of Deep Learning and Large Language Models in Time Series Traffic Flow Prediction. *The CUPUM 2025 Conference Proceedings*. CUPUM 2025, London, United Kingdom. https://osf.io/eqrmv

29. Shao, Z., **Zhao, Q.**, Cai, B., Zheng, X., Cheng, Q., Park, J., & Seok. (2025,

June 19). High-Resolution Mapping of Building Material Stocks and Lifecycle Embodied Carbon Emissions in China. *The CUPUM 2025 Conference Proceedings*. CUPUM 2025, London, United Kingdom. https://osf.io/5hn43

28. Sun, M., Pan, J., **Zhao, Q.**, & Bardhan, R. (2025, June 19). Heat Stress Dichotomy Long-term Adaptation and Acute Shock in London Domestic Environments. *The CUPUM 2025 Conference Proceedings*. CUPUM 2025, London, United Kingdom. https://osf.io/6s59b

27. Engstrom, R., Bharadwaj, A., Owusu, M., **Zhao, Q.**, Hafner, S., Kuffer, M., Onyambu, F. C., Kabaria, C., Elias, P., Odulana, O., Tregonning, G., Alugbin, B., Baruwa, K., Thomson, D. R., & De Albuquerque, J. P. (2025). Evaluating the Ability to Map the Degree of Informality within a City using a Scalable, Machine Learning Methodology in Nairobi, Kenya. *2025 Joint Urban Remote Sensing Event (JURSE)*, *CFP25RSD-ART*, 1–4. https://doi.org/10.1109/JURSE60372.2025.11076080

26. Hafner, S., De Paulo, M. C., **Zhao, Q.**, Kuffer, M., Engstrom, R., Thomson, D. R., Onyambu, F. C., Kabaria, C., Elias, P., Abascal, A., Tregonning, G., Odulana, O., Shonowo, A., Alugbin, B., Baruwa, K., Middleton, A., & de Albuquerque, J. P. (2025). Mapping Indicators for Morphological Informality in Nairobi, Kenya Using Satellite Imagery. *2025 Joint Urban Remote Sensing Event (JURSE)*, *CFP25RSD-ART*, 1–4. https://doi.org/10.1109/JURSE60372.2025.11076042

25. Huang, H., Cheng, Q., Zhu, D., Huang, X., & **Zhao, Q.** (2025). TextSCD: Leveraging Text-based Semantic Guidance for Remote Sensing Image Semantic Change Detection. *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, *X-G-2025*, 383–389. ISPRS Geospatial Week 2025 "Photogrammetry & Remote Sensing for a Better Tomorrow…" - 6–11 April 2025, Dubai, United Arab Emirates (UAE). https://doi.org/10.5194/isprs-annals-X-G-2025-383-2025

24. Zhu, M., & **Zhao, Q.** (2025, May 21). *The impact of housing conditions and socioeconomic status on domestic indoor overheating over summer: A study in Southwark, London, UK*. ICUC12. https://doi.org/10.5194/icuc12-292

23. Hafner, S., **Zhao, Q.**, Abascal, A., Comerio de Paulo, M., Tregonning, G., Middleton, A., Shonowo, A., Kuffer, M., Engstrom, R., Thomson, D. R., Onyambu, F. C., Kabaria, C., Elias, P., Odulana, O., Alugbin, B., Baruwa, K., & Porto de Albuquerque, J. (2025). Towards an Indicator-Based Morphological Informality Model for Sub-Saharan Africa Using Open Building Footprint and Road Data (Version 1). *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, *XLVIII-M-7–2025*, 221–228. 44th EARSeL Symposium - 26–29 May 2025, Prague, Czech Republic. https://doi.org/10.5194/isprs-archives-XLVIII-M-7-2025-221-2025

22. Bearman, N., Gaboardi, J. D., Roddy, P. J., **Zhao, Q.**, Chen, H., & Wolf, L. J. (2025, April 16). Location-allocation and public transit: An update on UCL student teacher placements. 33rd Annual Geographical Information Science Research UK (GISRUK), Bristol, United Kingdom. https://doi.org/10.5281/zenodo.15231178

2024 21. Feng, Z., Xian, X., Gamal, Y., **Zhao, Q.**, & Heppenstall, A. (2024). Optimizing the locations of electric vehicle charging stations in Georgia, USA. *Proceedings of the 32nd ACM International Conference on Advances in Geographic Information Systems*, 733–736. https://doi.org/10.1145/3678717.3700831

20. Kuffer, M., Abascal, A., Engstrom, R., Thomson, D. R., Tregonning, G., Shonowo, A., **Zhao, Q.**, de Albuquerque, J. P., Elias, P., Onyambu, F. C., & Kabaria, C. (2024). IDEAMAPS: Modelling Sub-Domains of Deprivation with EO and AI. *IGARSS 2024 - 2024 IEEE International Geoscience and Remote Sensing Symposium*, 1562–1566. https://doi.org/10.1109/IGARSS53475.2024.10642494

19. Ou, Y., Hu, C., & **Zhao, Q.** (2024). *Investigating the Impact of Housing Energy Efficiency on Indoor Environment at Overheating Summer – A Study in Southwark, London*. 32nd Annual Geographical Information Science Research UK (GISRUK), Leeds, United Kingdom. https://doi.org/10.5281/zenodo.10926876

2023 18. Bearman, N., Xu, R., Roddy, P. J., Gaboardi, J. D., **Zhao, Q.**, Chen, H., & Wolf, L. (2023). Developing capacitated p-median location-allocation model in the spopt library to allow UCL student teacher placements using public transport. *AGILE: GIScience Series*, *4*, 1–7. https://doi.org/10.5194/agile-giss-4-20-2023

17. Feng, Z., **Zhao, Q.**, & Heppenstall, A. (2023). Understanding the Complex Behaviours of Electric Vehicle Drivers with Agent-Based Models in Glasgow. In R. Beecham, J. A. Long, D. Smith, Q. Zhao, & S. Wise (Eds.), *12th International Conference on Geographic Information Science (GIScience 2023)* (Vol. 277, p. 29:1-29:6). Schloss Dagstuhl – Leibniz-Zentrum für Informatik. https://drops.dagstuhl.de/opus/volltexte/2023/18924

16. Li, Q., & **Zhao, Q.** (2023). Weakly-Supervised Semantic Segmentation of Airborne LiDAR Point Clouds in Hong Kong Urban Areas. 2023 Joint Urban Remote Sensing Event (JURSE), 1–4. https://doi.org/10.1109/JURSE57346.2023.10144215

15. Li, Q., Wang, M., Cai, Y., Luo, Q., Wang, Z., & **Zhao, Q.** (2023, April 19). *Identifying Tree Preservation Order Protected Trees by Deep Learning in Greater London Area*. 31st Annual Geographical Information Science Research UK (GISRUK), Glasgow, United Kingdom. https://doi.org/10.5281/zenodo.7839695

14. Li, Y., **Zhao, Q.**, & Wang, M. (2023, April 19). *Analysis The Influencing Factors of Urban Traffic Flows by Using Emerging Urban Big Data*. 31st Annual Geographical Information Science Research UK (GISRUK), Glasgow, United Kingdom. https://doi.org/10.5281/zenodo.7839683

2022 13. Li, Y., **Zhao, Q.**, & Wang, M. (2022). ANALYSIS THE INFLUENCING FACTORS OF URBAN TRAFFIC FLOWS BY USING NEW AND EMERGING URBAN BIG DATA AND DEEP LEARNING. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information*

Sciences, *XLIII-B4-2022*, 537–543. https://doi.org/10.5194/isprs-archives-XLIII-B4-2022-537-2022

12. Chen, H., Cao, Y., Feng, L., & **Zhao, Q.** "Modelling the Covid-19 vaccine uptake rates in a geographical and socioeconomic context: a case study of England." *30th Geographical Information Science Research UK Conference* (*GISRUK 2022)*. https://doi.org/10.5281/zenodo.6407133.

11. Sinclair, M., Maadi, S., **Zhao, Q.**, Hong, J., & Bailey, N. Understanding the socio-demographic representation of Tamoco mobile phone app data in Glasgow City Region. *30th Geographical Information Science Research UK Conference* (*GISRUK 2022)*. https://doi.org/10.5281/zenodo.6411683.

2021 10. Sinclair, M., **Zhao, Q.**, Bailey, N., Maadi, S., & Hong, J. Understanding the use of greenspace before and during the COVID-19 pandemic by using mobile phone app data. In *11th International Conference on Geographic Information Science*. https://doi.org/10.25436/E2D59P

2020 9. Vonnak, R. & **Zhao, Q.** "Fuel Poverty and Income Deprivation in Bristol, UK." *28th Geographical Information Science Research UK Conference* (*GISRUK 2020)*.

2019 8. **Zhao, Q.**, Dickson, C., Thornton, J., Wang, C., Solis, P., & Wentz, E. A. "Optimizing and rebalancing heat-related utility assistance provider-client system of the Salvation Army in Phoenix, Arizona." *16th International Conference on Computers in Urban Planning and Urban Management (CUPUM 2019)*.

7. **Zhao, Q.**, Reynolds, R., Wang, C., & Wentz, E. A. "A multidimensional urban land cover change analysis in Tempe, AZ." *2019 Joint Urban Remote Sensing Event (JURSE 2019)*. IEEE. https://doi.org/10.1109/JURSE.2019.8808957

2018 6. **Zhao, Q.**, Fischer, H., Luo, W., & Wentz, E. A. Community resilience in Maricopa County, Arizona, USA: the analysis of indoor heat-related death and urban thermal environment." In *AutoCarto/UCGIS 2018*, Madison, Wisconsin, USA.

2016 5. **Zhao, Q.**, Wentz, E. A., Fotheringham, A. S., Yabiku, S. T., Hall, S. J., Glick, J. E., Dai, J., Clark, M., & Heavenrich, H. Semi-parametric Geographically Weighted Regression (S-GWR): a Case Study on Invasive Plant Species Distribution in Subtropical Nepal. In *9th International Conference on Geographic Information Science,* Montreal, Canada. https://doi.org/10.21433/B3118kv3n3bq

2015 4. Wentz, E. A., & **Zhao, Q.** Assessing validation methods for building identification and extraction. In *2015 Joint Urban Remote Sensing Event (JURSE)* (pp. 1-4). IEEE. https://doi.org/10.1109/JURSE.2015.7120453

2014 3. **Zhao, Q.**, Wentz, E. A. & Murray, A. T. Shade optimization in a desert environment. In *8th International Conference on Geographic Information Science,* Vienna, Austria.

2012 2. **Zhao, Q.**, & Kuai, X. Land use classification and accuracy assessment based

on image fusion of TM and SPOT5. In *18th China Symposium on Remote Sensing*. (In Chinese)

1. Kuai, X., & **Zhao, Q.** Wetland image classification of remote sensing based on support vector machine. In *18th China Symposium on Remote Sensing*. (In Chinese)

Doctoral Dissertation

2017 **Zhao, Q.** (2017). "*Evaluating the Effectiveness of Tree Locations and Arrangements for Improving Urban Thermal Environment*" [PhD Thesis, ARIZONA STATE UNIVERSITY]. https://repository.asu.edu/attachments/192532/content/Zhao_asu_0010E_17356.pdf

Research Datasets

2026 **Zhao, Q.**, Hu, C., Ou, Y., Livingston, M., Wang, M., Hamada, R., & Eccles, P. (2026). *Sensor-enhanced housing survey supplementary data for urban heat investigation in Southwark, London* [Dataset]. Zenodo. https://doi.org/10.5281/zenodo.20709091

2025 **Zhao, Q.** & Feng, Z. (2025). *ChargePoint charging session data* [Dataset]. University of Glasgow. https://doi.org/10.20394/FPYX-AV38

Li, Q., **Zhao, Q.**, Quintas Zon, M., Jablon, P. E., Wang, M., Hu, C., Ou, Y., & Sen, S. (2025). *Large-scale 3D building and tree datasets constructed from airborne LiDAR point clouds in Glasgow, UK* [Dataset]. Zenodo. https://doi.org/10.5281/zenodo.15000747

2024 Li, Y., **Zhao, Q.**, & Wang, M. (2024). *High-resolution traffic flow data in Glasgow* [dataset]. Zenodo. https://doi.org/10.5281/zenodo.12100278

Guo, Z., **Zhao, Q.**, & Shi, X. (2024). *A Long-Term (1984-2021) Wetland Classification Dataset for the Yangtze River Basin from Continuous Landsat Image Collections* [Dataset]. figshare. https://doi.org/10.6084/m9.figshare.21859920.v1

Li, Q., **Zhao, Q.**, Quintas Zon, M., Jablon, P. E., Wang, M., Hu, C., Ou, Y., & Sen, S. (2024). *A large-scale Glasgow 3D city models derived from airborne LiDAR point clouds* [Data Collection]. Urban Big Data Centre. https://doi.org/10.20394/opvkevmj

2023 **Zhao, Q.**, Hu, C., Ou, Y., Livingston, M., Wang, M., Hamada, R., & Eccles, P. (2023). *Sensor-enhanced housing survey data for urban heat investigation* [Data Collection]. Urban Big Data Centre. https://doi.org/10.20394/7w2xw5of

Zhao, Q., Hu, C., Ou, Y., Livingston, M., Wang, M., Hamada, R., & Eccles, P. (2023). *Sensor-enhanced housing survey data for urban heat investigation in Southwark, London* [Dataset]. Zenodo. https://doi.org/10.5281/zenodo.14444475

2016 **Zhao, Q.** (2016). *Analysis of rooftop surface temperatures in an urban*

residential environment [Data Collection]. Environmental Data Initiative. https://doi.org/10.6073/PASTA/DD5F47BD551EE9BFDD6E6105BD6C28FA

Technical Reports or Other Publications

2023 **Zhao, Q.** "Sensor-enhanced housing survey for urban heat investigation" Online blog. Urban Big Data Centre, Glasgow, UK. https://www.ubdc.ac.uk/news/sensor-enhanced-housing-survey-for-urban-heat-investigation

Wu, H., Hu, C., Shrivastava, R., Zhao, M., & **Zhao, Q.** "MSc in Urban Analytics study visit to Aalto University in Finland" Online blog. Urban Big Data Centre, Glasgow, UK. https://www.ubdc.ac.uk/news/msc-in-urban-analytics-study-visit-to-aalto-university-in-finland

2022 Michel, J., Honle, S., & **Zhao, Q.** "Urban Analytics students dive into urban data" Online blog. Urban Big Data Centre, Glasgow, UK.

Li, Y., Torres, R., **Zhao, Q.**, & Yao, J. "Reviewing the reproducibility of research at AGILE PhD School" Online blog. Urban Big Data Centre, Glasgow, UK.

2021 Barcelos, G., Gaboardi, J., Wolf, L., & **Zhao, Q.** "Open-Source Facility Location Modeling (Spopt) Development" Online blog. Urban Big Data Centre, Glasgow, UK.

Sinclair, M., **Zhao, Q.**, Hong, J., & Bailey, N. "Are we visiting greenspace differently during the COVID-19 pandemic?" Online blog. Urban Big Data Centre, Glasgow, UK.

Zhao, Q. "Seeking talented individuals for our MSc in Urban Analytics in 2021-22." Online blog. Urban Big Data Centre, Glasgow, UK.

2020 Vonnak, R., Sarim, M., & **Zhao, Q.** "Comparison of active travel in global cities using Strava Metro Dashboard data." Online technical blog. Urban Big Data Centre, Glasgow, UK (Available upon request).

Sarim, M., **Zhao, Q.**, & Bailey, N. "Analysing the effects of COVID-19 Governmental responses on mobility in major European countries." Online technical blog. Urban Big Data Centre, Glasgow, UK.

2017 Fedorschak, K., Bajaj, V., Kandala, S., Miller, J., Salla, R., Kuby, M., Tong, D., Mu, W., & **Zhao, Q.** "Voting Precinct Design Tool: Resource Optimization for Election Administrators." White paper. ASU Decision Theater Network, Tempe, AZ, USA.

Research Grants

External Funding (PI: ~£823k. Co-I and/or WP lead: ~£8.8m)

Submitted

Funded

2026-2028 **Measuring Renewables Uptake and Value in UK Housing**, Secondary Data Analysis Initiative, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Prof. Nick Bailey, £295,246 (FEC)). Project Website: https://urbanbigdatacentre.github.io/merv/index.html

2026-2027 **From Smart Data to Health Impacts: Thermal Simulation of Indoor Environments in UK Cold Homes**, SDR UK Fellowship, Economic and Social Research Council (Fellowship Mentor. PI: Dr Mingyu Zhu, £199,799 (FEC)). News coverage: SDRUK, UoG.

2026-2027 **Understanding the socio-economic impacts of port decarbonisation**, SGSSS Academics Placement (Co-I. PI: Dr Mingyu Zhu. Link).

2026 **Urban Analytics in the AI Era: From Smart Data to Participatory Action**, AGILE PhD School (PI. €5,000)

2026 **Converge Net Zero Challenge 2026**, United Kingdom (Team member. Team lead: Ms Xingyi Du)

2026 **Small Research Grants**, Royal Geographical Society, United Kingdom (Co-I. PI: Dr Mingyu Zhu, £2,000. News coverage: RGS)

2025-2027 **Sensing Environmental Changes at the fringe of the new Glasgow LEZ: Heat and Air Quality conditions in the Gorbals**, GALLANT Innovation Fund, University of Glasgow (£31,489, £5,000 co-funded by Crossroad Youth & Community Association. PI. Project page: https://www.gla.ac.uk/research/az/sustainablesolutions/ourprojects/gallant/innovationfundprojects/sensingchangeheatandairqualityinthegorbals/)

2019-2027 **Data Lab MSc Scholarship**, Scottish Funding Council and European Social Fund, United Kingdom (PI. £155,400 for 25 MSc studentships)

2024-2025 **SpaceEPC: Earth Observation Thermal Satellite Data for Measuring Thermal Efficiency of Buildings**, ESA Open Call on Business Application (Academic PI and led by the Satellite VU Ltd. €489,707 (FEC), €146,022 (UoG), ESA Contract N.:4000145976/24/UK/AL/ek. Project page: https://business.esa.int/projects/spaceepc. News coverage: UoG, SatVU)

2025 **Emerging Workshop on Geospatial Foundation Models**, Royal Geographical Society QMRG Research Group Grant (Co-I. £1,000. PI: Dr Weiming Huang)

2023-2026 **Estimating building energy efficiency and carbon footprint for achieving a net-zero carbon target via urban sensing and AI**, Royal Society International Exchanges, United Kingdom (PI. Grant #IEC\NSFC\223042, £12,000 (FEC))

2023-2025 **The housing environment and energy panel: monitoring indoor residential**

environments and energy use via low-cost housing sensors, the Understanding Society Innovation Panel (PI, in-home sensors, smart metre)

2023-2025 **Developing and exploring methods to understand human-nature interactions in urban areas using new forms of big data**, Secondary Data Analysis Initiative, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Dr Michael Sinclair. Grant #ES/W012979/1, £292,306 (FEC))

2023 **Sensor-enhanced housing survey for urban heat investigation in London**, the Bureau of Investigative Journalism (PI. £55,470 (FEC). The entire project has been funded by *Google News Initiative, the Bill & Melinda Gates Foundation, Impact on Urban Health and Necessity*. News coverage: TBIJ1, TBIJ2, TBIJ3, TBIJ4, TBIJ5, UBDC1, UBDC2, The Mirror, UoG)

2023 **Development of spopt location modelling package to include the capacitated p-median problem**, AGILE funding initiative (PI. £7,679 (FEC), Demo: https://www.youtube.com/watch?v=u9EOdfe82Gs)

2022-2026 **IDEAMAPS: A participatory data-modeling ecosystem for deprived area map production in LMIC cities**, Bill & Melinda Gates Foundation (Co-PI. PI: Prof. João Porto de Albuquerque, $1,690,337 (FEC), News coverage: UoG). This grant also comes with a **three-year fully funded IDEAMAPS PhD scholarship** (PI. £34,122 (FEC), News coverage: Glasgow Live)

2022-2026 **The housing market impacts of buildings energy efficiency regulation.** Scottish Graduate School of Social Science Supervisor-led ESRC Steers PhD Competition, United Kingdom (Grant #ES/P000681/1 (2760675), 3.5 years PhD studentship funding (Tuition and Stipend at about £135k in total), Third Supervisor with Prof. Nick Bailey and Dr. David McArthur)

2022-2026 **Analytical strategies for improving third sector employability services in the post COVID-19 recovery.** Scottish Graduate School of Social Science Supervisor-led ESRC Open Collaborative PhD Competition, United Kingdom (Grant #ES/P000681/1 (2760612), 3.5 years PhD studentship funding (Tuition and Stipend at about £135k in total), Lead supervisor with Prof. Sharon Wright and Prof. Joao Porto de Albuquerque. External partner: The Salvation Army UK) with tuition and stipend at about £134k in total.

2022-2024 **Aalto/Glasgow urban analytics open-source programming camp**, Turing Scheme/University of Glasgow, United Kingdom (PI, 12 MSc students, £120/week for 4-8 weeks visit to Aalto University)

2022 **Scottish British Academy Early-Career Researcher Network Hub**, The British Academy, United Kingdom (Co-I, News coverage: the British Academy)

2022 **Glasgow 3D city modeling**, Glasgow City Council, United Kingdom

2021-2026 **Urban Big Data Centre Data Service Extension Phase 3b and 4**, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Nick Bailey, Grant #ES/L011921/1, £806,040 and £3,117,260 (FEC))

2021 **Urban mobility in Glasgow 2019-21**, Glasgow City Council, United Kingdom (Co-PI. PI: Nick Bailey, £147,819)

2020-2021 **Urban Big Data Centre Data Service Extension Phase 3a (World Class Labs Infrastructure)**, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Nick Bailey, Grant #ES/L011921/1, £766,321 (FEC), News coverage: UKRI1, UKRI2).

2020-2022 **Urban Big Data Centre Data Service Extension Phase 3**, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Nick Bailey, Grant #ES/L011921/1, £1,348,022 (FEC))

2019-2020 **Urban Big Data Centre Data Service Extension Phase 2**, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Nick Bailey, Grant #ES/L011921/1, £636,467 (FEC))

2019-2022 **Ventilation based Planning Methods to Respond Urban Haze Supported by Multi-source Spatial-temporal Big Data**, National Natural Science Foundation of China (¥600,000 in total, Co-PI. PI: Dr. Qingming Zhan, Grant #51878515)

2017 **Optimizing Tree Locations and Arrangement for Mitigating Urban Heat Island Effects and Improving Human Thermal Comfort in a Hot Arid Urban Residential Environment**, Dissertation Research Grant, American Association of Geographers (PI. $1,000, News coverage: AAG)

2016 **Imagery Grant**, DigitalGlobe Foundation (12 high resolution remotely sensed imagery of QuickBird, WorldView-1, WorldView-2 and GeoEye-1 in Chitwan, Nepal, PI)

Imagery Grant, European Space Agency (1 high resolution remotely sensed imagery of SPOT 6 in Chitwan, Nepal, Co-PI. PI: Dr. Sean Murphy)

Declined (Selected)

2026 **Towards a Validated Indicator of Hidden Household Underheating: Integrating Smart Meter and EPC with Sensor and Survey Evidence**, Understanding Society Fellowship, United Kingdom (Fellowship Mentor. PI: Ms Yunbei Ou)

Multilingualism as Infrastructure: Civic, Cultural and Digital Life, Focal awards: multilingual futures for UK growth and connectivity, Arts and Humanities Research Council (AHRC), United Kingdom (Co-PI. PI: Prof. Bernadette O'Rourke)

Daylight Poverty in High-Latitude Cities: Defining, Measuring, and Addressing Daylight Deprivation in Post-War High-Density Housing, Velux Stiftung Daylight Research (Co-PI. PI: Dr Pengyuan Liu)

Adaptive Mesh for Environmental and Energy-Aware Networks & Decision twins, COP-PILOT, HORIZON-CL4-2024-DATA-01, Horizon Europe (Co-PI. PI: Dr Oscar Gonzalez. Total: €199,362.83, UoG: €52,059.70)

"Dual inequality" of public EV charging infrastructure expansion in GB, Driving Net Zero through Data-Driven Innovation, Smart Energy Data Service, United Kingdom (Co-PI. PI: Dr Yuerong Zhang)

Building Energy: Comparative energy behaviour in non-domestic buildings in the University of Glasgow, Driving Net Zero through Data-Driven Innovation, Smart Energy Data Service, United Kingdom (Co-PI. PI: Dr Mingyu Zhu)

GICLens: Bridging Genomics and Social Context for Malaria Surveillance Using Agentic AI, Genomics in Context Awards: collaborative research at the intersection of genomics, humanities, social sciences and bioethics, Wellcome Foundation (Glasgow lead and Co-I. PI: Bing Guo. Total: £495,966, Glasgow: £45,546)

Over-Exposed: An Inquiry into the Impacts of Extreme Weather Events, Nuffield Foundation Strategic Fund (Co-I. PI: Beth Perry)

The Ideas Elevator – Maritime Decarbonisation, Connected Places Catapult, United Kingdom (Team member. Team lead: Ms Xingyi Du)

WasteSightAfrica: Identifying Urban Waste through Street Imagery and Citizen Sensing, Urban Studies Foundation Urban Urgencies (Co-I. PI: Pengyuan Liu. Total: £34,425)

GeoAI for healthy citizens, healthy cities, MSCA Doctoral Networks 2025, Horizon Europe (Glasgow lead and Co-I. PI: Carlos Granell Canut. Total: €3.6m, Glasgow: €1.0m)

FLEX-SENS: FLEXible, off-grid SENSing for urban environments, EPSRC Impact Acceleration Account, University of Glasgow (£33,000, Co-I. PI: Ahmad Taha)

Advancing Thermal Environment Assessment and Prediction: AI-Based Frameworks and Mitigation Strategies for Enhanced Urban Thermal Comfort, MSCA Postdoctoral Fellowship, Horizon Europe (PI. £376,000 (FEC), MSCA Postdoctoral Fellow: Dr Siqi Jia)

2025 **RACER-GEO: Refactoring and Community Engagement Research for GeoPandas and PySAL**, Software Sustainability Institute Research Software

Maintenance Fund, UKRI (Co-I. £567,017 (FEC), £261,952 (UoG). PI: Dr Levi Wolf)

UK-BEAM – UK Building Energy Assessment & Monitoring Index, SDR UK Opportunity Fund, Economic and Social Research Council (Co-I. £149,036 (FEC), £111,775 (UoG). PI: Prof. Daniel Arribas-Bel)

Reshaping Spaces, Services and Mobility (RSSM) – Collaborative Planning for Next-Generation Mobility Hubs, Driving Urban Transitions (DUT), (Glasgow PI. Project PI: Dr Jiayi Jin. €1,042,396 (FEC), €134,489 (UoG))

Optimisation Economic Transition to Resilient Port-Land Electrification, DARe Hub Flexible Fund, United Kingdom (PI. Co-I: Mingyu Zhu)

2024 **Cross-National Geographical Research on Internal Migration, Remote Work, And Receiving Regions**, Research the social sciences in the Open Research Area: round eight, Economic and Social Research Council (ESRC), United Kingdom (Co-PI & Glasgow PI. Project PI: Suzanne Mills in Canada. UK PI: Darja Reuschke)

Where, how, why? A data science framework to understand people's movement in cities - MoveAI, Engineering and Physical Sciences Research Council (EPSRC), United Kingdom (Co-PI. PI: Nicolas Pugeault)

Sustainability Smart Data Service (SuSDS), Smart Data Research UK, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Nick Bailey)

ESRC Centre for Participatory Data Analytics for Just Urban Sustainable Transformations (AD-JUST), Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Joao Porto de Albuquerque)

Interdisciplinary approaches to understanding multilingual cities and urban human language behaviour, Royal Society APEX awards 2024, United Kingdom (Co-PI. PI: Bernadette O'Rourke)

Building a FAIR Digital Footprints Knowledge Graph with Platial Ontology, Digitall Footprints Accelerator, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Rui Zhu)

2023 **Trans-Atlantic Spatial Quantitative Methods (TASQME) research network**, The Royal Society of Edinburgh Research Network, United Kingdom (PI. £20,000 (FEC))

Uncovering 'vaccine deserts' during Covid-19 pandemic: spatial modelling of vaccine accessibility and uptake across G7 countries, The British Academy Pandemic Preparedness: Lessons to Learn from COVID-19 across the G7, United

Kingdom (Co-PI. £97,054 (FEC))

2022 **SEEBEE: Sensing Environmental Equality with Bees using Everyday Equipment**, Engineering and Physical Sciences Research Council (EPSRC), United Kingdom (Co-PI. PI: Jeremy Singer)

2021 **Digital technology, employment opportunities and regional inequality**, Nuffield Foundation, United Kingdom (Co-PI. PI: Jiaqi Ge, Total: £203,484)

Quantifying the impact of AI on the UK job market using online advert data, Secondary Data Analysis Initiative, Economic and Social Research Council (ESRC), United Kingdom (Co-PI. PI: Jiaqi Ge, Total: £299,995. Glasgow: £28,276.)

Research on electric vehicle charging behaviours, new charging points location optimization, and policy promotion in Scotland? Scottish Graduate School of Social Science Supervisor-led ESRC Steers PhD Competition, United Kingdom (4 years PhD studentship funding, Second supervisor with Dr. Jinhyun Hong)

2020 **New mobility data to understand if shared e-scooter schemes increase active travel and improve population health**, National Institute for Health Research (NIHR) Public Health Research Programme, United Kingdom (Co-PI. PI: Susan Grant-Muller. Total: £1,073,579. Glasgow: £518,879)

Audience Prediction in a Covid and post Covid world, Innovate UK, United Kingdom (Academic PI. Business lead: Locomizer Ltd. Total: £169,894. Glasgow: £50,304)

2019 **The University as an Enabler for Sustainable Solutions**, Scottish Funding Council, United Kingdom (£250,000, Co-PI. PI: Dr. Jaime Toney)

Constructing a Digital Environment Expert Network, Natural Environment Research Council, United Kingdom (£10,000, PI, invited for final interview)

Promoting cycling in Scottish cities: how to build effective cycling infrastructure? Scottish Graduate School of Social Science Supervisor-led ESRC Steers PhD Competition, United Kingdom (4 years PhD studentship funding, Second supervisor with Dr. Jinhyun Hong)

The Understanding of Ghost City Development in China via Urban Big Data Analytics, Urban Studies Foundation Postdoctoral Research Fellowships (£160,000, PI. Apply with Dr. Ru Xu)

Internal Funding (PI: ~300k. Co-I: ~228k)

Submitted

2026-2027 **From Demonstrator to Decision Support: Operationalising the Clyde Port Digital Twin**, ESRC Impact Acceleration Account, University of Glasgow (£14,887.2, Co-I. PI: Mingyu Zhu)

2026-2027 **From Sensing Change to Real World Action: addressing overheating, underheating, and air pollution issues in Gorbals**, ESRC Impact Acceleration Account, University of Glasgow (£14,950.8, PI. Co-I: Xingyi Du)

Funded

2026-2027 **Bridging Research and Practice for Glasgow Waterfront Regeneration**, ESRC Impact Acceleration Account Private Sector Mobility Programme, University of Glasgow (£5,001, Co-I. PI: Mingyu Zhu)

2026 **Just Transitions in Waterfront: Scaling Up Business User Engagement in Port-City Digital Twin**, Creative and Social Futures Fund 2025-26, University of Glasgow (£14,849, PI. Co-I: Mingyu Zhu)

2025-2026 **Digital Twin for Clyde Port: Building Collaborative Foundations for Sustainable Transitions**, ESRC Impact Acceleration Account, University of Glasgow (£10,300, PI. Co-I: Mingyu Zhu)

2025 **Development of a LoRa-capable zero-infrastructure sensor network for long-term, low-cost environmental monitoring**, Interdisciplinary Rapid Responses Fund, College of Social Science, University of Glasgow (£3,252, PI. Co-I: Ahmad Taha)

Sensor-enhanced housing survey Phase 3, Urban Studies & Social Policy Research Funding, University of Glasgow (£2,000, PI)

2024-2025 **Gaelic Connect: a digital hub for Gaelic speakers and learners in the city of Glasgow**, Institutional Joint IAA Application, University of Glasgow (£43,336, Co-PI. PI: Bernadette O'Rourke. The Herald. UoG. Website.)

2023-2024 **An assessment of Low-Emission Zones through air quality, health risks, and environmental justice by leveraging Digital Footprint data in Glasgow**, College of Social Sciences Ambitious Interdisciplinary Research Funding, University of Glasgow (£4,749, Co-PI. PI: Ye Tian.)

2023 **Sensor-enhanced housing survey Phase 2**, Urban Studies Research Funding, University of Glasgow (£500, PI)

2022 **Exploring the Electric Vehicle Driver Behaviours for the Sustainable Future of Charging Infrastructure**, University of Glasgow China Scholarship Council (CSC) PhD Scholarships (Ms Zixin Feng, 4 years PhD studentship funding (Tuition and Stipend at about £127k in total), First supervisor with Prof. Alison Heppenstall)

Development of spopt location modelling package to include the capacitated p-median problem, Research Incentivization Funding, Urban Studies, University of Glasgow (£1,500, PI)

Individuals' cycling volumes and socio-demography: Evaluating urban cycling infrastructure using crowd-sourced data, Early Career Research (ECR) Support Fund, School of Social & Political Sciences, University of Glasgow (£1,000, PI)

Exploration of the use of new forms of urban big data and sensing technologies for creating a sustainable and healthy urban environment, Collaboration Development Fund, School of Social & Political Sciences, University of Glasgow (£3,000, PI, with MIT Sensible City Lab)

Understanding regional disparity – a job-housing (im)balance perspective, College Research Fund, College of Social Science; Early Career Research (ECR) Support Fund, School of Social & Political Sciences; Research Incentivization Funding, Urban Studies, University of Glasgow (£3,247, £1,000, and £1,500, PI)

2021 **Estimation and Prediction of Urban Traffic Flows in Response to COVID-19 Using Machine Learning**, University of Glasgow China Scholarship Council (CSC) PhD Scholarships (Ms Yue Li, 4 years PhD studentship funding (Tuition and Stipend at about £122k in total), First supervisor with Dr. Mingshu Wang)

Understanding multilingual citizens in the city space, Reinvigorating Research Funding, University of Glasgow (£37,200, Co-I, PI: Bernadette O'Rourke)

Classifying City Level Housing Materials by Using Google Street View Images and Deep Learning, Research Incentivization Funding, Urban Studies, University of Glasgow (£1,500, PI)

Exploring human-nature interactions using new forms of data. College of Social Science Research Fund, University of Glasgow (£4,945, Co-PI, PI: Nick Bailey and Michael Sinclair)

2020 **Mitigating Urban Heat Island Effects through the Intelligent Use of Sustainable Materials**, University of Edinburgh/University of Glasgow Jointly Funded PhD Studentships Project Competition (Theme: Future Cities; 4 years PhD studentship funding (Tuition and Stipend at about £143k in total), Second supervisor with Dr. Chris Beckett)

Harnessing Crowd Sourced Big Data for Driving Next Generation Location-Based Services in Future Cities, University of Edinburgh/University of Glasgow Jointly Funded PhD Studentships Project Competition (Theme: Future Cities; 4 years PhD studentship funding, Second supervisor with Prof. Tughrul Arslan. Project was awarded but the candidate turned down the offer.)

2017 **Impact of Tree Locations and Arrangements on Outdoor Microclimate and Human Thermal Comfort in a Compact Urban Residential Environment**, Graduate Grants for Research in Urban Ecology and Urban Systems Research, Central Arizona-Phoenix Long-Term Ecological Research (CAP-LTER), Arizona State University ($4,000, PI)

2016 **Validating Microclimate Benefits from Optimal Tree Location Arrangement: a Physical Scale Model Site Field Measurement**, JumpStart Research Grant, Graduate and Professional Student Association (GPSA), Arizona State University ($500, PI)

2015 **Rooftop Surface Temperature Analysis in an Urban Residential Environment**, Graduate Grants for Research in Urban Ecology and Urban Systems Research, Central Arizona-Phoenix Long-Term Ecological Research (CAP-LTER), Arizona State University ($4,000, PI)

Tree Shade Effects on House Surface Temperature in an Urban Desert Environment, Matthew G. Bailey Scholarship Award, School of Geographical Sciences and Urban Planning, Arizona State University ($1,500, PI)

Honors and Awards

Awards

2026 **CPGIS Young Scholar Award** (young "rising stars" for their research contributions to GIScience, who received the doctoral degree in the last 10 years), the International Association of Chinese Professionals in Geographic Information Sciences (CPGIS), News coverage: UoG.

2024 **GISCup 2024 Award (3rd place)**, 32nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2024) (collaborative project led by Ms Zixin Feng, team member includes Xinyan Xian, Yahya Gamal, and Alison Heppenstall, link).

2024 **Finalist**, **Early Career Researcher Award**, RTPI Awards for Research Excellence (collaborative publication with Dr Tongping Hao in HKU, News coverage: RTPI)

2022 **Shortlist**, **Most Innovative Transport Project of the Year**, Scottish Transport Awards (Glasgow City Council & Urban Big Data Centre – collaborative use of location services data in transport planning in Glasgow, News coverage: GCC)

2021 **Fellowship of Recognizing Excellence in Teaching (RET)**, University of Glasgow

2020 **Global Young Scientist Award**, World Geospatial Developers Conference (News coverage).

2018 **J. Warren Nystrom Award** (An outstanding paper based upon a recent dissertation in geography), American Association of Geographers (News coverage: AAG, ASU)

2017 **Graduate Excellence Awards**, College of Liberal Arts and Sciences, Arizona State University

2016 **Finalist, Landscape Specialty Group Student Presentation Competition**,

American Association of Geographers

2013-2014 **University Graduate Fellowship**, Arizona State University

2013 **Geographical Sciences Teaching Assistant Award**, School of Geographical Sciences and Urban Planning, Arizona State University

2010-2012 **Fellowship for Academic Excellence**, Wuhan University

2011 **First Prize in Social Science Research**, Youth Research Centre at Wuhan University

2010-2011 **Trimble Scholarship**, Wuhan University

2010-2011 **Outstanding Student**, Wuhan University

Travel Grants

2017 **Graduate College Preparing Future Faculty Travel Award**, Arizona State University

2015-2017 **Graduate College Travel Award**, Arizona State University

2015 **Conference Travel Grants**, CAP-LTER, Arizona State University

2015 **Individual Travel Funding**, GPSA, Arizona State University

2014 **John F. Lounsbury Student Travel Scholarship**, School of Geographical Sciences and Urban Planning, Arizona State University

Teaching Interests

Urban Analytics, Urban Data Science, Geographic Information Science, Remote Sensing, Spatial Analysis and Statistics, Location Modeling and Spatial Optimization, Sustainable Urban Environment.

Teaching Experience

University of Glasgow, Scotland

2026 AGILE PhD School: Urban Analytics in the AI Era: From Smart Data to Participatory Action (https://urbanbigdatacentre.github.io/agilephdschool2026/).

Aalto University, Finland

2023 Workshop: Introduction to Open-Source Spatial Optimization (https://github.com/qszhao/Aalto2023-spopt).

University of Glasgow, United Kingdom

Postgraduate

- Advanced Topics for Urban Analytics (Course Contributor, 2026-now).
- Programming Tools for Urban Analytics (Course Convener, Spring, 2019-now).
- Urban Analytics Group Projects (Course Convener, Fall/Spring, 2019-2024).
- Big Data and Urban Analytics (Course Convener/Contributor, Fall, 2019-2022).
- Quantitative Data Analysis (Course Tutor, Fall 2019).

Undergraduate

- Quantitative Methods in the Social Sciences (Course Convener and Tutor, Fall, 2026-now)
- Big Data, Policy & Power (Course Contributor, Spring, 2021-2023).

- Social & Public Policy 2B: Policy, Politics and Power (Course Contributor, Spring, 2019-2023).

Arizona State University, United States

Spring 2017 GIS 461/561: Optimization Fundamentals for Spatial Analysis. (Hybrid course instructor, co-teach with Dr. Heather Fischer)

Fall 2013 GPH 370: Geographic Information Technologies. (Teaching assistant, lab leader and grader)

Students/Postdocs Advised

University of Glasgow

Postdoctoral Research Associates:

- Dr Mingyu Zhu (Sensor Enhanced Housing Survey, SpaceEPC, ESRC IAA and Creative and Social Futures Fund for Port Digital Twin, IDEAMAPS, and SDR UK Fellowship, 2024-now, https://www.linkedin.com/in/mingyu-zhu/)
- Dr Sebastian Hafner (IDEAMAPS, 2024-2025 – Now Researcher at RISE Research Institutes of Sweden, https://www.linkedin.com/in/sebastian-hafner-236b72228/)
- Dr Qiaosi Li (3D City Modeling and SpaceEPC, 2022-2024 – Now GIS Team Leader in Wirral Council, https://www.linkedin.com/in/qiaosi-li-820a79284/)
- Dr Grant Tregonning (IDEAMAPS and Sensor Enhanced Housing Survey, 2023-2024 – Now Data Science Manager in DWP Central Analysis and Science Directorate, https://www.linkedin.com/in/granttregonning/)
- Dr Angela Abascal (IDEAMAPS, 2023 – Now Associate Researcher in Universidad Pública de Navarra with one of the most prestigious Spanish National Scholarships Juan de la Cierva Scholarship, https://www.linkedin.com/in/angela-abascal-imizcoz/)
- Dr Michael Sinclair (Understanding Urban Mobility with Mobile Phone Data, 2020-2023 – Now Permanent Lecturer in Urban Analytics in Urban Studies and UBDC and the ESRC-SDAI project PI from 2023-2025, https://www.linkedin.com/in/michael-sinclair-496a25111/)
- Dr Saeed Maadi (Understanding Urban Mobility with Mobile Phone Data, 2020-2022 – Now Network Performance & Technical Manager in Mobiie (National Traffic Control Centre, https://www.linkedin.com/in/saeed-maadi-62b940b9/)
- Dr Chau Man Fung (Sensor Enhanced Housing Survey, 2021 – Now Senior Economist in Ofgem (https://www.linkedin.com/in/chau-man-fung-755420b8/)

Data Scientists:

- Mr Luis Serra (SpaceEPC, 2025, https://www.linkedin.com/in/luis-a-serra/)

Ph.D. Students (ongoing):

- Mohd Sarim (Ph.D. in Urban Studies, SGSSS open competition PhD Studentships with the Salvation Army UK, 2022-2026, First supervisor with Prof. Joao Porto de Albuquerque and Prof. Morag Treanor)
  Intern: Sensor Gorbals.
- Adenike Oluwatimilehin Shonowo (Ph.D. in Urban Studies, IDEAMAPS PhD Studentships, 2023-2027, Second supervisor with Prof. Joao Porto de Albuquerque and

Prof. Peter Elias)

- Andre Kurniawan (Ph.D. in Urban Studies, Indonesia Jakarta Transport Police Department PhD Studentships, 2026-2030, First supervisor with Dr Mingshu Wang)
- Qin Li (Ph.D. in Urban Studies, University of Glasgow China Scholarship Council PhD Studentships, 2026-2030, Second supervisor with Dr Pengyuan Liu)

Ph.D. Students (finished):

- Niantang Liu (Ph.D. in Geological and Earth Sciences/Geosciences, 2019-2024, Second supervisor with Dr Brian Barrett and Dr Richard Williams. Thesis title: **Crop mapping using deep learning and multi-source satellite remote sensing** – Now Assistant Research Fellow in Chinese Academy of Agricultural Sciences)
- Henry Ibitolu (Ph.D. in Civil and Environmental Engineering, University of Edinburgh/University of Glasgow Jointly Funded PhD Studentships, 2020-2025, Glasgow supervisor with Dr Chris Beckett and Dr Daniel Fosas from University of Edinburgh. Thesis title: **Bridging Indoor and Outdoor Microclimates: A Multiscale Co-simulation Framework for the Thermal Performance of Earthen Buildings**, https://www.linkedin.com/in/ibitscholar/)
  Award: the Allianz Climate Risk Research Award 2021 Finalist (link); University of Edinburgh Delegate to COP27 in Cairo, Egypt; Committee member of the UK Net Zero Carbon Building Standard Committee; Awarded the RENKEI Early Career Researcher Fellowship by the British Council (link); Member of UK Young Academy (link) – Now Project Officer (Estate Energy Optimisation) in the Sustainability and Property Asset Management team in Glasgow City Council.
- Yue Li (Ph.D. in Urban Studies, University of Glasgow China Scholarship Council PhD Studentships, 2021-2026, First supervisor with Dr Mingshu Wang. Thesis title: **Estimation and Prediction of Urban Traffic Flows in Response to COVID-19 Using Machine Learning and Foundational Models**)
  Award: Alan Turing Institute PhD Enrichment Scheme 2022; Postgraduate Representative of QMRG (link) – Now Research Associate in Data Science and Urban Climate Modelling in the University of Manchester.
- Ziying Guo (Ph.D. in Environmental Sustainability, 2021-2025, Second supervisor with Dr John Xiaogang Shi. Thesis title: **Hydrological Responses to Wetland Changes in the Yangtze River Basin** – Now Assistant Professor in Shanghai Maritime University)
- Zixin Feng (Ph.D. in Urban Studies, University of Glasgow China Scholarship Council PhD Studentships, 2022-2026, First supervisor with Prof. Alison Heppenstall. Thesis title: **Exploring the Use of Agent-based Models for Electric Vehicle Driver Behaviour Simulation**)
  Award: Alan Turing Institute Data Study Group 2023; BEHAVE ESSA Summer School 2023 on "Agent-based modelling for social scientist"; Alan Turing Institute PhD Enrichment Scheme 2024 – Now Research Fellow in Agent-based Modelling in the University of Leeds.
- Yunbei Ou (Ph.D. in Urban Studies, SGSSS Steers PhD Studentships, 2022-2026, Third supervisor with Prof. Nick Bailey and Dr David McArthur. Thesis title: **Assessing the housing market incentives from residential building energy efficiency regulations**)
  Award: Alan Turing Institute Data Study Group 2023; Alan Turing Institute PhD Enrichment Scheme 2024

Intern: Sensor Enhanced Housing Survey and 3D City Modeling.

M.Sc. Students and Research Assistant:

- Xingyi Du (Glasgow Urban Transport, IDEAMAPS, SpaceEPC, Sensor Enhanced Housing Survey, and Sensing Gorbals, 2024-now, https://www.linkedin.com/in/xingyi-du-1825162a0/)
- Michelle Gwynn (Glasgow PhD in Economy & Social History, SGSSS PhD Placement in Maritime Port Decarbonisation, 2026-27)
- Mohammed Abdelaaty Hassan (Glasgow Electrical Engineering PhD student, LoRa sensor development, 2025)
- Maoran Sun (Cambridge PhD in Architecture, SpaceEPC, 2024-2025, https://www.linkedin.com/in/maoran-sun/)
- Manuella Comerio de Paulo (Glasgow Urban Analytics, IDEAMAPS, 2024, https://www.linkedin.com/in/manuella-comerio-de-paulo/)
- Mingkang Wang (Glasgow Urban Analytics, Sensor Enhanced Housing Survey, Job-Housing Balance Analysis, 3D City Modeling, and Multilingual Cities, 2021-2023 – Now Risk Management Analyst in China CITIC Bank, https://www.linkedin.com/in/mingkangwang-glasgow/)
- Congying Hu (Glasgow Urban Analytics, Sensor Enhanced Housing Survey, and 3D City Modeling, 2023 – Now NPD Data Custodian at Sustrans, https://www.linkedin.com/in/congying-hu/)
- Rongbo Xu (UCL Urban Analytics, AGILE open-source location allocation modeling, 2023 – Now Associate Data Engineer at Vortexa, https://www.linkedin.com/in/rongbo-xu-51302b235/)
- Samuel Honle (Glasgow Urban Analytics, Urban Cycling Analysis, 2022 – Now Junior Research Engineer at the Austrian Institute of Technology - https://www.linkedin.com/in/samuelhoenle/)
- Reka Vonnak (Glasgow Urban Analytics, COVID-19 Mobility Study, 2019-2020 – Now Environmental Science PhD at Central European University, https://www.linkedin.com/in/reka-vonnak/)
- Mohd Sarim (Glasgow Urban Analytics, COVID-19 Mobility Study, 2019-2020 – Now Urban Analytics PhD students at UBDC, https://www.linkedin.com/in/mohd-sarim-2296851a8/)

Academic Visitors:

- Naila (PhD student, University of Padua, 2026-27)
- Chia-Pin Kao (Professor, Southern Taiwan University of Science and Technology, 2026-27)
- Siqi Jia (Research Assistant Professor, the Division of Landscape Architecture, the University of Hong Kong, 2026)
- Rui Qiao (PhD Student, the Department of Building and Real Estate, the Hong Kong Polytechnic University, 2026)
- Jiameng Hu (Assistant Professor, College of Public Administration, South-Central Minzu University, 2026-27)
- Mengdi Zhang (Engineer, Natural Resources Comprehensive Survey Command Centre, China Geology Survey, 2025-26)

- Qimin Cheng (Professor, School of Electronic Information and Communications, Huazhong University of Science and Technology, 2024-25)
- Zhenfeng Shao (Professor, State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, 2024-25)
- Pengyu Wang (Master of Science in Geo-information Science and Earth Observation, University of Twente, 2024. Now PhD students in University College Dublin)
- Li Tian (Associate Professor, Institute of Geographic Science and Natural Resources, Chinese Science Academy, 2023)
- Xiao Li (Senior Researcher, Transport Studies Unit, University of Oxford, 2023. Now Assistant Professor, Department of Land Surveying and Geo-Informatics, the Hong Kong Polytechnic University)

Google Summer of Code Students:

- Zixin Feng ([PySAL: spopt Development] Flow-based Facility Location Models (Project link), Summer 2025)
- Rongbo Xu ([PySAL: spopt Development] P-Median Model with Near-Far Cost Allocation: Guided by Tobler's Law (Project link), Summer 2023)
- Erin Rosemary (PySAL: Open Source Facility Location Modelling (spopt) Development (Project link), Summer 2022)
- Germano dos Santos (PySAL: Open Source Facility Location Modelling (spopt) Development (Project link), Summer 2021)

External Thesis Assessment Board:

- Yuan Sun (PhD in Environmental Science, University of Manchester, 2026. Thesis title: Improving urban climate modelling within the Earth system model framework to support adaptation)
- Tongxin Chen (PhD in Spatio-Temporal Big Data Analytics, University College London, 2024. Thesis title: The impact of human mobility on urban crime: a geo-tagged big data-driven approach)
- Pengyu Wang (Master of Science in Geo-information Science and Earth Observation, University of Twente, 2024. Thesis title: Deep learning for integration of Satellite images and Google Streetview for mapping informal settlements (slums))
- Shan Yu (MPhil in Land Economy, University of Cambridge, 2023. Thesis title: Institutional advantage or market muddler? Understanding the role of the local government financing vehicles in urban development in China)
- Christian Caton (MRes in Computer Science, University of Warwick, 2022. Thesis title: Evaluating Public Consultation in Urban Planning via Neural Language Models and Topic Modelling)
- Sree Venkata Satya Praneeth Kadiyam (Master of Science in Geo-information Science and Earth Observation, University of Twente, 2021. Thesis title: Crime Rate Prediction from Street View Images using Convolutional Neural Networks and Transfer Learning)

Arizona State University
M.Sc. Students:

- Ryan Reynolds (M.A. in Geography, 2018-2019)
- Dhrumil Shah (M.S. in Computer Science 2018-2019)

- Fan Xiao (Master of Geographic Information Science, 2015-2016)

Selected Invited Presentations and Workshops

2026 Sandpit participant, **Future data services sandpit: transforming discovery and access**, Economic and Social Research Council. Oct 12-23, 2026. (https://www.ukri.org/opportunity/future-data-services-sandpit-transforming-discovery-and-access/)

School of Geography, **University College Dublin**. "Understanding Cities by Urban Sensing and Analytics." Sep 16, 2026.

Climate Change and Public Health Webinar, **Integrated Research on Disaster Risk**. "Understanding Cities by Urban Sensing and Analytics." Sep 1, 2026. (https://www.irdrinternational.org/news/918)

Sandpit participant, **AI supported research using UKRI social science data**, Economic and Social Research Council. June 23-24, 2026. (https://www.ukri.org/opportunity/sandpit-ai-supported-research-using-ukri-social-science-data/)

Keynote Speech, **2026 International Conference on Urban Analytics**. "Understanding cities by urban sensing and analytics." June 20, 2026. https://icua-org.github.io/2026/

Panel member, **TRIG Showcase & Networking Event** – Scotland, Connected Places Catapult. "Urban Scotland Integration". Feb 5, 2026. (https://cp.catapult.org.uk/event/trig-scotland/)

2025 Warwick Business School Gillmore Centre Webinar, **University of Warwick**. "Understanding Cities by Urban Sensing and Analytics." Oct 31, 2025. (https://www.wbs.ac.uk/events/view/9243/)

School of Earth and Space Sciences, **Peking University**, China. "Understanding Cities by Urban Sensing and Analytics." Aug 13, 2025.

Institute of Geography, Ruhr University Bochum (IZG). "Understanding Cities by Urban Sensing and Analytics." May 16, 2025. (https://www.izg.rub.de/veranstaltungen.html)

The Bell Edwards Geographic Data Institute (BEGIN) seminar, School of Geography and Sustainable Development, **University of St Andrews**. "Understanding Cities by Urban Sensing and Analytics." Apr 1, 2025. (https://begin.wp.st-andrews.ac.uk/2025/03/10/begin-seminar-dr-qunshan-zhao/)

2024 Department of Civil, Environmental and Geomatic Engineering, **University College London**. "Understanding Cities by Urban Sensing and Analytics." Oct 30, 2024.

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS), Wuhan University, China **(Royal Society International Exchange Partner 2023-26)**. "Understanding Cities by Urban Sensing and Analytics." Oct 19, 2024.

School of Public Management, Huazhong Agricultural University, China. "Understanding Cities by Urban Sensing and Analytics." Oct 17, 2024.

School of Resource and Environmental Sciences, Wuhan University, China. "Understanding Cities by Urban Sensing and Analytics." Oct 16, 2024.

School of Geography, University of Leeds. "Understanding Cities by Urban Sensing and Analytics." Jul 9, 2024.

AI for Cities Workshop, College of Architecture and Urban Planning, Tongji University, China. "Understanding Cities by AI and Urban Analytics." Jul 2, 2024 (Online).

CPGIS Educational Webinar Series, GIS & Energy/Environment. "Understanding Cities by Urban Sensing and Analytics." Mar 15, 2024 (https://www.youtube.com/watch?v=Mdm3oCl3rEU&t=2409s).

UBDC Data Service Webinar. "Sensor Enhanced Housing Survey." Mar 6, 2024.

School of Urban Planning and Design, **Peking University** Shenzhen Graduate School, China. "Understanding Cities by Urban Sensing and Analytics." Jan 5, 2024.

Department of Urban Informatics, Shenzhen University, China. "Understanding Cities by Urban Sensing and Analytics." Jan 5, 2024.

School of Environment and Spatial Informatics, Chinese University of Mining and Technology, China **(Royal Society International Exchange Partner 2023-26)**. "Understanding Cities by Urban Sensing and Analytics." Jan 4, 2024.

2023 The 5th International Conference on Natural Resource Management and Public Policy, Huazhong Agricultural University, China. "Optimization of tree locations and arrangements to reduce human heat stress in an urban park." Dec 1, 2023 (Online).

GeoSPA Talks, Finnish University Network for Geoinformatics, **Aalto University**, Finland. "Understanding cities by urban sensing and analytics." Oct 17, 2023.

Department of Natural Resources & the Environment, University of Connecticut, USA. "Quantifying the Cumulative Cooling Effects of 3D Building and Tree

Shades with High Resolution Thermal Imagery in a Hot Arid Urban Climate." Jul 11, 2023.

Center for Geographic Analysis, **Harvard University**, USA. "Optimization of tree locations and arrangements to reduce human heat stress in an urban park." Jul 6, 2023. (https://gis.harvard.edu/event/optimization-tree-locations-and-arrangements-reduce-human-heat-stress-urban-park)

The Sensible City Lab, **Massachusetts Institute of Technology**, USA. "Understanding cities by sensing and urban analytics." Jul 5, 2023.

Annals of GIS Award Winners Webinar. Identifying locations for new bike-sharing stations in Glasgow: an analysis of spatial equity and demand factors., May 23, 2023. (Online Presentation)

Keynote Speech, **Finnish Geoinformatics Research Days 2023**. "Understanding building energy efficiency and the use of greenspace with administrative and emerging urban big data in Glasgow." May 15, 2023. https://fiuginet.fi/2023/04/18/geoinformatics-research-days-2023-programme-and-registration/

College of Oceanography and Space Informatics, China University of Petroleum (Apr 10, 2023); School of Environment, Beijing Normal University (Apr 13, 2023). "Quantifying the Cumulative Cooling Effects of 3D Building and Tree Shades with High Resolution Thermal Imagery in a Hot Arid Urban Climate."

Deep Learning and Earth Science Seminar (第二届深度学习与地球科学专题研讨会) (online, in Chinese). "Weakly-Supervised Deep Learning of Large-scale Airborne LiDAR Point Clouds Classification in Glasgow (基于大尺度高分辨率 LiDAR 点云和深度学习的城市建筑与植被分类—以格拉斯哥为例)" Apr 1, 2023.

School of Remote Sensing and Information Engineering, Wuhan University (Mar 30, 2023); Centre for GeoData and Analysis, Beijing Normal University (Apr 12, 2023); Aerospace Information Research Institute (Apr 12, 2023) and Institute of Geographic Sciences and Natural Resources Research (Apr 13, 2023), Chinese Academy of Sciences "Optimization of Tree Locations to Reduce Human Heat Stress in an Urban Park."

Quantitative Spatial Science Seminar, School of Geographical Sciences, University of Bristol. "Understanding building energy efficiency and the use of greenspace with administrative and emerging urban big data in Glasgow." Mar 8, 2023.

Media and Data Science Seminar, School of Computing Science, University of Glasgow. "Understanding building energy efficiency and the use of greenspace with administrative and emerging urban big data in Glasgow." Jan 25, 2023.

2022 Spatial Statistics and Spatial Analysis Seminar (中国矿业大学环境与测绘学院学术论坛-空间统计与空间分析专场) (online, in Chinese). "Optimization of tree locations and spatial arrangements to reduce human heat stress in an urban park." Dec 15, 2022.

Statistics Seminar, School of Mathematics & Statistics, University of Glasgow. "Understanding building energy efficiency and the use of greenspace with administrative and emerging urban big data in Glasgow." Nov 14, 2022.

Heat Islands and Inequality Journalism Symposium. "Urban Heat Island and Household Indoor Environment Monitoring." Sep 13, 2022.

UBDC Employment Data User Group webinar: Adzuna Jobs Listings data. "Exploration of Adzuna jobs listing data." May 24, 2022.

Graduate Colloquium Series, Department of Geography, University of Northern Iowa, United States. "Designing a Sustainable Urban Environment by Spatial Data Science & Urban Climatology" Feb 18, 2022.

Deep Learning and Earth Science Seminar (第一届深度学习与地球科学专题研讨会) (online, in Chinese). "Understanding Cities by AI and Urban Analytics (基于新型城市数据和深度学习理解城市环境和人类活动)" Jan 8, 2022.

2021 Towards urban analytics 2.0, The Alan Turing Institute and University of Leeds, United Kingdom. "Identifying Tree Preservation Order (TPO) by Multi-source Deep Learning in Greater London Area" Nov 30, 2021.
https://www.turing.ac.uk/events/towards-urban-analytics-20

GDSL (Geographic Data Science Lab)-CDRC (Consumer Data Research Centre) Brown Bag Seminar, Department of Geography and Planning, University of Liverpool (online). "Fuel poverty or pandemic mobility? A new insight for private rental housing market and green space visitation from new forms of urban big data." Jun 17, 2021.
Event: https://www.eventbrite.com/e/gdsl-cdrc-brown-bag-seminar-with-qunshan-zhao-tickets-156653664327#
Video: https://www.youtube.com/watch?v=N17ehdINW88

MoHeap 2021: Virtual Workshop on Mobility, Health, and Place, University of Zurich (online). "Understanding the interaction between human activities and physical health under extreme heat environment in Phoenix, Arizona." Jun 8, 2021. Event: https://sites.google.com/view/moheap/home?authuser=0
Video: https://www.youtube.com/watch?v=rJT6h267IBo&t=3s

Introduction to Adzuna Job Market Data, Glasgow, UK (online). "Understanding the impact of AI and smart technologies on jobs using online job vacancy data." May 25, 2021.

Event: https://www.ubdc.ac.uk/education-and-events/events-and-courses/past-events-2021/introduction-to-adzuna-job-market-data-webinar/
Video: https://www.youtube.com/watch?v=CEo5vh9BkL4

School of Engineering, Newcastle University (online) "A multi-scale framework for fuel station location: From highways to street intersections." Mar 15, 2021.

2020 Kongping Primary School, Ya'an, Sichuan, China (online, in Chinese). "Smart Cities." Dec 10, 2020.

SAD 2020 Spatial Analytics + Data Seminar Series 2020, Newcastle University (online). "Articulating strategies to address heat resilience." Nov 3, 2020.
https://www.youtube.com/watch?v=tKYkbKpNPDY&t=67s

Geoinsider 43, China (online, in Chinese). "Articulating strategies to address heat resilience with Salvation Army utility assistance program/UK higher education system discussion after Brexit." Oct 30, 2020.
https://www.bilibili.com/video/BV1Nv411r7L4

UBDC Interactive Data Dives, Glasgow, UK (online). "An exploration of fuel poverty in the private rental housing market." Oct 20, 2020.
GitHub repo: https://github.com/qszhao/UBDCDataDives2020;
Video: http://www.ubdc.ac.uk/education-and-events/online-learning/online-tutorials/interactive-data-dives/

Shenzhen University, Shenzhen, China (online, in Chinese). "Introduction to Urban Analytics: Education and Research." Sep 23, 2020.

Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China (online, in Chinese). "International Collaboration and Communication（交流与沟通–国际合作与科技促进）" Sep 18, 2020.

WGDC Summit 2020 (全球地理信息开发者大会青年科学家论坛), Beijing, China (online, in Chinese). "A multi-scale framework for fuel station location: From highways to street intersections (多尺度氢能源汽车早期充气站选址优化与分析)" Aug 19, 2020. http://zhibo.sina.com.cn/tech/wgdcscience

2019 Geoinsider 6, China (online). "Unveiling the myth of United Kingdom higher education." Nov 22, 2019. https://www.bilibili.com/video/BV1Ee411W79c

Urban Studies Monday Workshop, University of Glasgow, United Kingdom. "Understanding Long-term Heat Resilience by Urban Analytics." Nov 4, 2019.

Building a Future for the Urban Analytics Blueprints, The Alan Turing Institute and University of Bristol, United Kingdom. "Understanding the Long-term Heat Resilience by Urban Analytics" Oct 17, 2019.

https://www.turing.ac.uk/events/building-future-urban-analytics-blueprint

NERC Constructing a Digital Environment Workshop, Edinburgh, United Kingdom. Oct 16, 2019. https://nerc.ukri.org/innovation/activities/environmentaldata/digitalenv/news/workshops/

Urban Big Data Centre Research Meeting, University of Glasgow, United Kingdom. "Urban Analytics Implication for Urban Planning and Public Policy." May 28, 2019.

SPARC Brown Bag, Arizona State University, USA. "Knowledge Exchange for Resilience." Mar 20, 2019. (Co-present with KER Executive Director, Dr. Patricia Solís)

Laboratory of Systems Pharmacology and Center for Geographic Analysis, **Harvard University**, USA. "Thrive as cancer cells in forests? Spatial, social, and ecological factors driving the distribution of invasive plant (Mikania micrantha) establishment and spread in a biodiversity hotspot in subtropical Nepal." Jan 10, 2019. (Presentation audio is available online at: https://gis.harvard.edu/event/thrive-cancer-cells-forests-spatial-social-and-ecological-factors-driving-distribution)

2018 University of Glasgow, United Kingdom. "Building the MSc in Urban Analytics." Dec 10, 2018.

Transport Lab, Arizona State University, USA. "Trip-Based Hydrogen Station Location for Central Connecticut: Combining Regional and Micro Scale Modeling." Nov 14, 2018. (Co-present with Dr. Michael Kuby)

Science and Mathematics Colloquium Series, College of Integrative Sciences and Arts, Arizona State University, USA. "Community resilience in Maricopa County: urban green infrastructure planning and the HeatMapper citizen science project." Sep 5, 2018.

J. Warren Nystrom Award Presentation, **American Association of Geographers**, USA. "Impact of tree locations and arrangements on outdoor microclimates and human thermal comfort in an urban residential environment." April 11, 2018. https://aag.secure-abstracts.com/AAG%20Annual%20Meeting%202018/sessions-gallery/12160

2017 SPARC Brown Bag, Arizona State University, USA. "Designing a sustainable urban environment by spatial data science and urban climatology." Nov 14, 2017.

Dr. Chao Wang and Dr. Yu Yao's group, School of Electrical, Computer, and Energy Engineering, Arizona State University, USA. "Fund yourself in the graduate school." May 3, 2017.

Dr. Kevin Gurney's group, School of Life Sciences, Arizona State University, USA. "Unveiling the myth of creating sustainable urban desert residential environment." March 15, 2017.

Selected Conference Presentations and Posters

2025 Zhu, M. & **Zhao, Q.** The impact of housing conditions and socioeconomic status on domestic indoor overheating over summer: A study in Southwark, London. *ICUC12*, Rotterdam, Netherland, July 7-11, 2025. (Presentation)

Feng, Z., **Zhao, Q.**, & Heppenstall, A. Exploring the Influencing Factors of Public Electric Vehicle Charger Usage in Great Britain. *CUPUM 2025*, London, United Kingdom, June 23-27, 2025. (Presentation)

Li, Y., **Zhao, Q.**, & Wang, M. Comparative Analysis of Deep Learning and Large Language Models in Time Series Traffic Flow Prediction. *CUPUM 2025*, London, United Kingdom, June 23-27, 2025. (Presentation)

Sun, M., Pan, J., **Zhao, Q.**, & Bardhan, R. Heat Stress Dichotomy Long-term Adaptation and Acute Shock in London Domestic Environments. *CUPUM 2025*, London, United Kingdom, June 23-27, 2025. (Presentation)

Pei, Y., **Zhao, Q.**, Wang, J., Zheng, Z., Liu, X., Zhang, Y., & Wan, Y. 3D Building Reconstruction Based on Publicly Available Satellite Data in Nairobi. *44th EARSeL Symposium*, Prague, Czech Republic, May 26-29, 2025. (Presentation)

Sun, M., Hou, C., Li, Q., Zhang, F., Bardhan, R., & **Zhao, Q.** Deciphering Exterior: Building Energy Efficiency Prediction with Emerging Urban Big Data. *44th EARSeL Symposium*, Prague, Czech Republic, May 26-29, 2025. (Young Scientist Awards Presentation by Maoran Sun)

Hafner, S., **Zhao, Q.**, Abascal, A., Comerio de Paulo, M., Tregonning, G., Middleton, A., Shonowo, A., Kuffer, M., Engstrom, R., Thomson, D. R., Onyambu, F. C., Kabaria, C., Elias, P., Odulana, O., Alugbin, B., Baruwa, K., & Porto de Albuquerque, J. Towards an Indicator-Based Morphological Informality Model for Sub-Saharan Africa Using Open Building Footprint and Road Data. *44th EARSeL Symposium*, Prague, Czech Republic, May 26-29, 2025. (Young Scientist Awards Presentation by Sebastian Hafner)

2024 Li, Q., & **Zhao, Q.** Constructing a Large-scale 3D Building and Tree Model for Glasgow City via Airborne LiDAR Point Clouds. *43rd EARSeL Symposium*, Manchester, United Kingdom, June 17-20, 2024. (Presentation)

Ou, Y., Hu, C., & **Zhao, Q.** Investigating the Impact of Housing Energy Efficiency on Indoor Environment at Overheating Summer – A Study in Southwark, London. *32nd Annual Geographical Information Science Research UK (GISRUK 2024)*, Leeds, United Kingdom, Apr 9-12, 2024. (Presentation)

2023 Ibitolu, H, Beckett, C., **Zhao, Q.**, & Fosas, D. Investigating the Impact of Earthen Building Materials on Urban Neighborhood Climate: A case study of London. *ICUC 11*, Sydney, Australia, August 28-Sep 1, 2023. (Presentation)

Li, Q., & **Zhao, Q.** Weakly-Supervised Semantic Segmentation of Airborne LiDAR Point Clouds in Hong Kong Urban Areas. *JURSE 2023*, Heraklion Crete, Greece, May 17-19, 2023. (Poster)

Li, Y., **Zhao, Q.**, & Wang, M. Analysis The Influencing Factors of Urban Traffic Flows by Using Emerging Urban Big Data. *31th Geographical Information Science Research UK Conference* (*GISRUK 2023)*, Glasgow, UK, April 19-21, 2023. (Poster)

2022 **Zhao, Q.**, Li, Z., Shah, D., Fischer, H., Solis, P., & Wentz, E. A. Understanding the interaction between human activities and physical health under extreme heat environment in Phoenix, Arizona. *19th International Medical Geography Symposium* (*IMGS 2022)*, Edinburgh, UK, June 19-24, 2022. (Presentation)

Sinclair, M., Maadi, S., **Zhao, Q.**, Hong, J., & Bailey, N. Understanding the socio-demographic representation of Tamoco mobile phone app data in Glasgow City Region *30th Geographical Information Science Research UK Conference* (*GISRUK 2022)*, Liverpool, UK, April 5-8, 2022. (Presentation)

Beairsto, J., Tian, Y., Zheng, L., **Zhao, Q.**, & Hong, J. Identifying locations for new bike-sharing stations in Glasgow: an analysis of spatial equity and demand factors. *2022 Annual Meeting of the American Association of Geographers,* New York, NY, USA, February 25-March 1, 2022. (Online Presentation)

Sun, M., Han, C., Nie, Q., Xu, J., Zhang, F., & **Zhao, Q.** Understanding building energy efficiency in Glasgow by multi-source deep learning framework. *2022 Annual Meeting of the American Association of Geographers,* New York, NY, USA, February 25-March 1, 2022. (Online Presentation)

Wang, M., Yang, C., Luo, Q., Wang, Z., & **Zhao, Q.** Identifying tree preservation order (TPO) by deep learning in greater London area. *2022 Annual Meeting of the American Association of Geographers,* New York, NY, USA, February 25-March 1, 2022. (Online Presentation)

Sinclair, M., Maadi, S., **Zhao, Q.**, Bailey, N., Hong, J., & Ghermandi, A. Advancing home location detection and exploring socio-demographic representativeness of new forms of mobile phone data. *2022 Annual Meeting of the American Association of Geographers,* New York, NY, USA, February 25-March 1, 2022. (Online Presentation)

2021 Sinclair, M., **Zhao, Q.**, Bailey, N., Maadi, S., & Hong, J. Understanding the use of greenspace before and during the COVID-19 pandemic by using mobile phone app data. *GIScience 2021,* Online, September 27-30, 2021. (Online Presentation, https://www.youtube.com/watch?v=WlODfccx89I&t=2141s)

Zhao, Q. "An exploration of fuel poverty in the private rental housing market in

City of Glasgow." *2021 Annual Meeting of the American Association of Geographers,* Seattle, WA, USA, April 7-11, 2021. (Online Presentation)

2020 Vonnak, R. & **Zhao, Q.** "Fuel Poverty and Income Deprivation in Bristol, UK." *28th Geographical Information Science Research UK Conference* (*GISRUK 2020)*, London, UK, July 21-23, 2020. (Online Presentation, https://www.youtube.com/watch?v=-OWdtLpHko0)

2019 **Zhao, Q.**, Reynolds, R., Li, Y., Wang, C., & Wentz, E. A. "A multidimensional urban land cover change analysis in Tempe, AZ." *JURSE 2019*, Vannes, France, May 22-24, 2019. (Poster)

Zhao, Q., Li, Z., Thornton, J., Solis, P., & Wentz, E. A. "Optimizing and rebalancing heat-related utility assistance provider-client system at Phoenix, Arizona." *2019 Annual Meeting of the American Association of Geographers,* Washington D.C., USA, April 3-7, 2019. (Guided poster)

Zhao, Q., Fischer, H., Luo, W., Solis, P., & Wentz, E. A. "Community Resilience in Maricopa County, Arizona, USA: the Analysis of Indoor Heat-related Death and Urban Environment." *The 99th American Meteorological Society Annual Meeting,* Phoenix, Arizona, USA, January 6-10, 2019. (Poster)

2018 **Zhao, Q.**, Fischer, H., Luo, W., & Wentz, E. A. "Community resilience in Maricopa county, Arizona, USA: the analysis of heat vulnerable population and urban green infrastructure." *The 10th International Conference on Urban Climate,* New York, New York, USA, August 6-10, 2018. (Presentation)

Zhao, Q., Sailor, D. J., & Wentz, E. A. "Impact of tree locations and arrangements on outdoor microclimates and human thermal comfort in an urban residential environment." *2018 Annual Meeting of the American Association of Geographers,* New Orleans, Louisiana, USA, April 10-14, 2018. (Presentation)

2017 **Zhao, Q.**, Kuby, M. J., & Xiao, F. "Optimal hydrogen station location for central Connecticut by using trip-based modeling at the regional scale." *UCGIS 2017 Symposium*, Arlington, Virginia, USA, May 23-25, 2017. (Poster)

Zhao, Q., Yang, J., Wang, Z., & Wentz, E. A. "Assessing the cooling benefits of tree shade by a microclimate physical scale model site at Tempe, AZ." *2017 Annual Meeting of the American Association of Geographers,* Boston, Massachusetts, USA, April 5-9, 2017. (Presentation)

2016 **Zhao, Q.**, Wentz, E. A., Fotheringham, A. S., Yabiku, S. T., Hall, S. J., Dai, J., Clark, M., & Heavenrich, H. "Semi-parametric geographically weighted regression (S-GWR): a case study on invasive plant species distribution in subtropical nepal." *GIScience 2016,* Montreal, Canada, September 27-30, 2016. (Poster)

Zhao, Q., Wentz, E. A., Fotheringham, A. S., Yabiku, S. T., Hall, S. J., & Dai, J. "Socio-ecological factors influence to invasive plant species distribution in community forests ecosystems in subtropical Nepal" *2016 Annual Meeting of the American Association of Geographers,* San Francisco, California, USA, March 29-April 2, 2016. (Presentation)

2015 **Zhao, Q.**, Zhan, S., Kuai, X, & Zhan, Q. "Spatio-temporal analysis of urban heat island and urban metabolism by satellite imagery over the Phoenix metropolitan area" *AGU 2015 Fall Meeting,* San Francisco, California, USA, December 14-18, 2015. (Poster)

Zhao, Q., Myint, S. W., & Wentz, E. A. "Rooftop surface temperature analysis in urban residential environment." *2015 Annual Meeting of the Association of American Geographers,* Chicago, Illinois, USA, April 21-25, 2015. (Presentation)

Zhao, Q., & Wentz, E. A. "Assessing validation methods for building identification and extraction." *JURSE 2015*, Lausanne, Switzerland, March 30-April 1, 2015. (Presentation and poster)

2014 **Zhao, Q.**, Wentz, E. A., & Murray, A. T. "Shade optimization in a desert environment." *2014 Annual Meeting of the Association of American Geographers*, Tampa, Florida, USA, April 8-14, 2014. (Presentation)

2012 **Zhao, Q.**, & Kuai. X. "Land use classification and accuracy assessment based on image fusion of TM and SPOT5." *The 18th China Symposium on Remote Sensing,* Wuhan, Hubei, China, October 20-23, 2012. (Presentation)

Professional Service

Membership of Learned Societies

2026-present Board of Director, the International Association of Chinese Professionals in Geographic Information Sciences (CPGIS, https://www.cpgis.org/).
2023-present Member of GIScience Steering Committee (https://gisciencesteering.github.io/GIScienceInfo/index.html)
2021-2025 Secretary, RGS-IBG Quantitative Methods Research Group (https://qmrg.github.io/).
2018-2021 Board Member, Spatial Analysis and Modeling Specialty Group, American Association of Geographers (https://aag-sam.github.io/history.html).

External Roles

2025-present Grant Assessment Panel Member, National Space Innovation Programme, UK Space Agency
2025 Grant Assessment Panel Member, Smart Data Research UK Fellowship
2023-present Programme External Examiner, MSc Urban Informatics, King's College London.
2022-2024 Grant Assessment Panel Member, Secondary Data Analysis/Research Grants/New Investigator Grants, Economic and Social Research Council

(https://www.ukri.org/opportunity/esrc-responsive-mode-secondary-data-analysis-round-two/ and https://www.ukri.org/publications/membership-of-the-esrc-grant-assessment-panels/).

2022-2024 Member, ESRC Future Data Services Programme Board

2022 Programme External Examiner, MSc Urban Analytics and Visualisation, University of Warwick.

Conference Organization Committee

2025-2026 Program Committee, the 1st International Conference on Geospatial Artificial Intelligence (GeoAI 2026) (https://geoaiconference.org/).

2025 Programme Co-Chair, Domestic overheating: What now? Why now? (https://www.eventbrite.co.uk/e/domestic-overheating-what-now-why-now-tickets-1356301146239)

2025 Programme Committee, GIScience 2025 (https://giscience2025.org/).

2024 Programme Co-Chair, Alan Turing Institute Urban Analytics Programme Event 2024 (https://www.turing.ac.uk/events/transforming-urban-living-ai-and-digital-twins).

2024 Programme Co-Chair, Data-driven Decarbonisation in Scotland (https://www.eventbrite.co.uk/e/data-driven-decarbonisation-in-scotland-tickets-1043750163837)

2024-2025 Program Committee, the 19th International Conference on Location Based Services (LBS 2025) (https://lbs2025.lbsconference.org/).

2024 Program Committee, the 5th Spatial Data Science Symposium (SDSS 2024) (https://sdss2024.spatial-data-science.net/).

2023-2024 Programme Co-Chair, AGILE 2024 (https://agile-online.org/conference-2024).

2023 Local Organization Committee Member, CPGIS 2023 (https://www.cpgis.org/conferences/ConferenceDefault.aspx?ID=2079).

2023 Program Committee, LocBigDataAI 2023 (https://lbs.icaci.org/locbigdata2023/).

2023 Program Committee, the 4th Spatial Data Science Symposium (SDSS 2023) (http://sdss2023.spatial-data-science.net/).

2022-2023 Programme Chair, GIScience 2023 (https://giscience2023.github.io/).

2022-2023 Local Organizing Committee Member, GISRUK 2023 (https://gisruk.org/gisruk-2023/).

2022 Program Committee, the 3rd Spatial Data Science Symposium (SDSS 2022) (http://sdss2022.spatial-data-science.net/index.html).

Editorial Appointments

2021-present Editorial Board, the Urban Book series, Springer (https://www.springer.com/series/14773).

2025-present Guest Editor, *International Journal of Digital Earth*, Remote Sensing in the Age of AI: Integrations, Innovations, and Applications (with Dr Mingming Jia, Dr Kai Yan, and Dr Taejin Park. Link to the Special Issue.)

2021-2023 Guest Editor, *Remote Sensing*, Advances in Remote Sensing of Land-Sea Ecosystems (with Dr. Jiwei Li and Dr. Di Yang. Link to the Special Issue.)

2019-2020 Guest Editor, *Annals of GIS*, GIS and Urban Data Science (with Dr. Yijing Li and Dr. Chen Zhong)

2018-2019 Guest Editor, *Remote Sensing*, Remote Sensing of Urban Ecology and Sustainability (with Prof. Elizabeth A. Wentz. Link to the Special Issue.)

External Promotion and Tenure Review

University of Southampton (2026)
University of Hong Kong (2025)

Research Grant Proposal Reviewer

- *UK Research and Innovation Talent Peer Review College Member*
- *UK Research and Innovation – Economic and Social Research Council (ESRC)*
- *UK Research and Innovation – Engineering and Physical Sciences Research Council (EPSRC)*
- *UK Research and Innovation – Global Challenges Research Fund*
- *UK Space Agency*
- *UK Understanding Society Fellowship*
- *US National Science Foundation Graduate Research Fellowship Program (GRFP)*
- *US University of Wisconsin-Milwaukee Discovery and Innovation Grant*
- *France CY Initiative – CY Generations, CY Cergy Paris Université*
- *Canada Social Sciences and Humanities Research Council (SSHRC) Insight Grants*

Journal Reviewer

- *Journal of Geophysical Research: Atmospheres*
- *Energy Policy*
- *IEEE Geoscience and Remote Sensing Letters*
- *Environment and Planning B: Urban Analytics and City Science*
- *Annals of GIS*
- *Sustainable Cities and Society*
- *PeerJ*
- *Sustainability*
- *Ecosystem Health and Sustainability*
- *Transportation Research Record*
- *Royal Society Open Science*
- *Journal of Transport Geography*
- *Sustainable and Resilient Infrastructure*
- *Transportation Research Part D*
- *Journal of Maps*
- *International Journal of Geographical Information Science*
- *ISPRS International Journal of Geo-Information*
- *Land Degradation & Development*
- *Computers, Environment, and Urban Systems*
- *International Journal of Remote Sensing*
- *PLOS ONE*
- *Landscape and Urban Planning*
- *Atmosphere*
- *Natural Hazards*
- *Journal of the American Water Resources Association*
- *Urban Forestry & Urban Greening*
- *Transactions in GIS*
- *Professional Geographer*
- *Scientific Data*
- *Nature Cities*
- *The Geographical Journal*
- *Nature Communications*

Book Chapter Reviewer

- *"Integrating Scale in Remote Sensing and GIS", CRC Press, Taylor & Francis Group.*
- *"Human Dynamics in Smart Cities", Springer.*

Professional Service

2023	Session Chair, *New Forms of Data*, GIScience 2023, Leeds, UK.
2023	Session Chair, *Remote Sensing*, CPGIS2023, London, UK.
2021-2022	Session Co-organizer, *Symposium on Scale in Spatial Analytics and Modeling: Scaling and Analysis on Urban Big Data*, 2022 Annual Meeting of the American Association of Geographers, New York, USA (https://aag-annualmeeting.secure-platform.com/a/solicitations/19/sessiongallery/2891)
2019-2021	Session Chair and Co-organizer, *Urban Data Science: Methods, Models, and Applications for Our Changing Cities*, 2020 Annual Meeting of the American Association of Geographers, Denver, Colorado, USA (https://aag.secure-abstracts.com/AAG%20Annual%20Meeting%202020/sessions-gallery/25255) and 2021 Annual Meeting of the American Association of Geographers, Seattle, Washington, USA (https://aag.secure-abstracts.com/AAG%20Annual%20Meeting%202021/sessions-gallery/27313) (Virtual Sessions).
2018-2019	Bibliography Committee Member, International Association for Urban Climate
2017	Session Chair and Co-organizer, *Urban green infrastructure: geospatial and climate application*, 2018 Annual Meeting of the American Association of Geographers, New Orleans, Louisiana, USA (https://aag.secure-abstracts.com/AAG%20Annual%20Meeting%202018/sessions-gallery/457).
2017-2018	Science Advisor, NASA DEVELOP National Program
2015	Session Co-Chair, *Applications of urban remote sensing*, Joint Urban Remote Sensing Event (JURSE) 2015, Lausanne, Switzerland.

University Service

2019-2024	Programme Convener, MSc in Urban Analytics, Urban Studies, School of Social and Political Sciences, University of Glasgow
2021-2022	School Ethics Forum Member, School of Social and Political Sciences, University of Glasgow
2020-2021	Core Member, Research Integrity and Openness Working Group, Urban Studies, School of Social and Political Sciences, University of Glasgow
2015-2016	Secretary, ASU Student Chapter of American Society for Photogrammetry & Remote Sensing (ASPRS).

Professional Society Membership

American Association of Geographers
Royal Geographical Society
Chinese Professionals in Geographic Information Sciences
International Association for Urban Climate
IEEE Geoscience and Remote Sensing Society