Ryan Zhenqi Zhou

(Last update: April 2025)

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EDUCATION

2021 - Present **Ph.D. (Geographic Information System)**
University at Buffalo - SUNY, USA
Supervisor: Prof. Yingjie Hu

2018 - 2021 **Master of Engineering (Landscape Architecture)**
Nanjing Forestry University, China

2014 - 2018 **Bachelor of Agriculture (Landscape Gardening)**
Zhejiang A&F University, China

RESEARCH & WORK EXPERIENCE

August 2024 – Present **Research Assistant**
Population Health Sciences, Weill Cornell Medical College, USA

May 2024 – Present **Consultant**
Global Health, World Bank - IFC, USA

May 2023 – Present **Research Assistant to Prof. Yingjie Hu**
GeoAI Lab, Department of Geography, University at Buffalo - SUNY, USA

August 2023 – August 2023 **Research Fellow**
NSF I-GUIDE Summer School, UCAR, Boulder, Colorado, USA

August 2022 – May 2023 **Teaching Assistant to Prof. Yingjie Hu**
Department of Geography, University at Buffalo - SUNY, USA
GEO 481/506 Geographical Information Systems

May 2022 – August 2022 **Research Assistant to Prof. Yingjie Hu**
Funded by NSF Research Experience for Graduates (REG) Grant

August 2021 – May 2022 **Research Assistant to Prof. Yingjie Hu**
GeoAI Lab, Department of Geography, University at Buffalo - SUNY, USA

August 2020 - September 2020 **Spatial data analyst (Intern)**
MetroDataTech, China

RESEARCH EXPERTISE & SKILLS

- GeoAI, Geospatial Data Science, Spatial Analysis, Statistical Analysis, Spatial-Temporal Data Mining
- Machine Learning, Artificial Intelligence
- Well versed in using Python, NumPy, Pandas, GeoPandas, Scikit-Learn, Keras, TensorFlow, Matplotlib, Seaborn, Bokeh, Request, Json, PyQt, R, SQL, GitHub, ArcGIS Pro

PUBLICATIONS

2025 **Zhou R.Z.**, Hu Y., Sun K., Muldoon R., Clark S., & Joseph K. (2025): Explainable GeoAI and statistical analysis reveal complementary insights about disparities of 311 help requests during the 2022 Buffalo blizzard. Under review.

2025 Sun K., Hu Y., Joseph K., & **Zhou R.Z.** (2025): GALLOC: a GeoAnnotator for Labeling LOCation descriptions from disaster-related text messages. *International Journal of Geographical Information Science*, 1-31. https://doi.org/10.1080/13658816.2025.2464643

2024 Sun K., **Zhou R.Z.**, Kim J., & Hu Y. (2024): PyGRF: An improved Python Geographical Random Forest model and case studies in public health and natural disasters. *Transactions in GIS*. https://doi.org/10.1111/tgis.13248

2024 **Zhou R.Z.**, Hu Y., Zou L., Cai H., & Zhou B. (2024): Understanding the disparate impacts of the 2021 Texas winter storm and power outages through mobile phone location data and nighttime light images. *International Journal of Disaster Risk Reduction*, 103, 104339. https://doi.org/10.1016/j.ijdrr.2024.104339

2024 Tirabassi, J. N., Wang, J., **Zhou, R. Z.**, & Hu, Y. (2024): Human mobility data demonstrates increase in park visitation since start of COVID-19 pandemic in Buffalo, New York. *Preventive Medicine Reports*, 102650. https://doi.org/10.1016/j.pmedr.2024.102650

2023 Sun K., Hu Y., Lakhanpal, G., & **Zhou, R.Z.** (2023): Spatial cross-validation for GeoAI. *Handbook of Geospatial Artificial Intelligence, Taylor & Francis Group*.

2023 Hu, Y., Mai, G., Cundy, C., Choi, K., Lao, N., Liu, W., Lakhanpal, G., **Zhou, R.Z.**, & Joseph, K. (2023): Geo-knowledge-guided GPT models improve the extraction of location descriptions from disaster-related social media messages. *International Journal of Geographical Information Science*, 1-30. https://doi.org/10.1080/13658816.2023.2266495

2023 Sun K., Hu Y., Ma Y., **Zhou R. Z.**, & Zhu Y. (2023): Conflating point of interest (POI) data: A systematic review of matching methods. *Computers, Environment and Urban Systems*, 103, 101977. https://doi.org/10.1016/j.compenvurbsys.2023.101977

2023 Xu Z., Li M., Chen Y., & **Zhou R.Z.** (2023): Assessing the cycling accessibility of comprehensive parks with online maps: a case study of Nanjing City. *Journal of Nanjing Forestry University Natural Science*, 1-8 (in Chinese).

2022 **Zhou R.Z.**, Hu Y., Tirabassi J.N, Ma Y., & Xu Z. (2022): Deriving neighborhood-level diet and physical activity measurements from anonymized mobile phone location data for enhancing obesity estimation. *International Journal of Health Geographics*, 21, 22. https://doi.org/10.1186/s12942-022-00321-4

2022 Zhang B., Dong Y., Kelobonye K., **Zhou R.Z.**, & Xu Z. (2022): Delineating walking catchment of the existing and proposed public sports facilities with open-source data: a case study of Nanjing. *Applied Spatial Analysis and Policy*, 16, 729-749. https://doi.org/10.1007/s12061-022-09499-3

2022 Chen Y., Zhang B., Li M., **Zhou R.Z.**, & Xu Z. (2022): Concatenating daily exercise routes with public sports facilities, bicycle lanes, and green spaces: a feasibility analysis in Nanjing, China. *Land*, 11, 2251. https://doi.org/10.3390/land11122251

2022 Yue M., Hu Y., Moncrieff G.R., Slingsby J.A., Wilson A.M., Maitner B., & **Zhou R.Z.** (2022): Forecasting vegetation dynamics in an open ecosystem by integrating deep learning and environmental variables. *International Journal of Applied Earth Observation and Geoinformation*, 114, 103060. https://doi.org/10.1016/j.jag.2022.103060

2022 Dong Y., Zhang B., **Zhou R.Z.**, & Xu Z. (2022): Assessing the accessibility of swimming pools in Nanjing by walking and cycling using Baidu Maps. *International Journal of Geo-Information*, 11(10), 515. https://doi.org/10.3390/ijgi11100515

2021 **Zhou R.Z.**, Xu Z., Liu A., Zhou S., Mu L., & Zhang X. (2021): Mapping the accessibility of medical facilities of Wuhan during the COVID-19 pandemic. *International Journal of Geo-Information*, 10(5), 318. https://doi.org/10.3390/ijgi10050318

2021 Xu Z., **Zhou R.Z.**, Wang Y., Han L., & Xing J. (2021): Analysis on walking shed in comprehensive parks and urban form from a Park-City perspective. *City Planning Review*, 45(03), 81-90 (in Chinese).

2021 Xu Z., Liu A., **Zhou R.Z.**, & Han L. (2021): Analyzing and scenarioizing walking routes and urban context of middle school students with Baidu Map: a case study of Jianye District of Nanjing. *Modern Urban Research*, 2, 33-40+91 (in Chinese).

2021 Xu Z., Gao Z., **Zhou R.Z.**, & Zhang J. (2021): Research on campus sitting space: a case study of Nanjing Forestry University. *Modern Urban Research*, 4, 30-35 (in Chinese).

2020 **Zhou R.Z.** & Xu Z. (2020): Detecting the pedestrian shed and walking route environment of urban parks with open-source data: a case study in Nanjing, China. *International Journal of Environmental Research and Public Health*, 17(13), 4826. https://doi.org/10.3390/ijerph17134826

2020 Liu A., Kelobonye K., **Zhou R.Z.**, Xu Q., Xu Z., & Han L. (2020): School commuting mode shift: a scenario analysis for active school commuting using GIS and online map API. *International Journal of Geo-Information*, 9(9), 520. https://doi.org/10.3390/ijgi9090520

2020 Zhang J., **Zhou R.Z.**, & Xu Z. (2020): Suitability evaluation of university facilities layout based on demand characteristics: taking several universities in Nanjing as examples. *Modern Urban Research*, 4, 43-51 (in Chinese).

CONFERENCE & WORKSHOP PRESENTATIONS

2025 Oral presentation: Explainable GeoAI and statistical analysis reveal complementary insights about

disparities of 311 help requests during the 2022 Buffalo blizzard, in the *2025 AAG Annual Meeting*, Mar. 26, 2025, Detroit, USA.

2024 Poster presentation: Understanding the disparate impacts of the 2021 Texas winter storm and power outages through mobile phone location data and nighttime light images, in the *31st International Conference on Geoinformatics, CPGIS*, Aug. 15, 2024, Toronto, Ontario, Canada.

2023 Oral presentation: Improving the 3D representation of rivers in digital elevation models (DEM), in the *2023 NSF I-GUIDE Summer School*, Aug. 11, 2023, Boulder, Colorado, USA.

2023 Oral presentation: Understanding spatial and temporal impacts of the Texas winter storm in 2021 via mobile phone location data and nighttime light images, in the *2023 AAG Annual Meeting*, Mar. 26, 2023, Denver, Colorado, USA.

2022 Oral presentation: Deriving neighborhood-level diet and physical activity measurements from anonymized mobile phone location data for enhancing obesity estimation, in the *GEOMED 2022*, Oct. 14, 2022, University of California, Irvine, California, USA.

2022 Poster presentation: Human mobility data demonstrates increase in park visitation since start of COVID-19 pandemic in Buffalo, New York, in the *American College of Preventive Medicine (ACPM) 2022 annual meeting*, Jun. 15-18, 2022, Denver, Colorado, USA (Co-Author).

2022 Poster presentation: Mapping the accessibility of medical facilities of Wuhan the COVID-19 pandemic, in the *University Consortium for Geographic Information Science (UCGIS) Symposium 2022*, Jun. 7-9, 2022, Syracuse, New York, USA.

2022 Oral presentation: The role of place visits related to diet and physical activity from mobile phone location data in enhancing obesity estimation at the neighborhood level, in the *Graduate Student Lightning Talks, Spring 2022 Colloquium Speaker Series, UB Department of Geography*, Feb. 18, 2022, Buffalo, New York, USA.

AWARDS & GRANTS

2025 Hugh W. Calkins Applied GIS Award, by Department of Geography at the University at Buffalo - SUNY

2025 AAG SAM Student Travel Award, by AAG Spatial Analysis & Modeling Specialty Group (SAM)

2024 Michael Trapasso Climate Impacts Award, by Department of Geography at the University at Buffalo - SUNY

2024 Hugh W. Calkins Applied GIS Award, by Department of Geography at the University at Buffalo - SUNY

2023 Travel Award, by 2023 NSF I-GUIDE Summer School Program

2023 Hugh W. Calkins Applied GIS Award, by Department of Geography at the University at Buffalo - SUNY

2022 NSF Research Experience for Graduates (REG) Grant, by Human-Environment and Geographical Sciences (HEGS) program in the National Science Foundation (NSF), Student PI

SERVICE

Peer Review for Academic Journals

- Computational Urban Science
- Environment and Planning B: Urban Analytics and City Science
- Journal of Map
- Royal Society Open Science
- International Journal of Digital Earth
- Transactions in GIS
- Scientific Data
- Spatial and Spatio-temporal Epidemiology
- International Journal of Disaster Risk Reduction

Voluntary Service

- Co-host of GeoAI for Disaster Resilience session at AAG, Mar. 26, 2025, USA.
- Co-host of GISalon, GISphere (Student-initiated volunteer organizations), Oct. 2021-present, USA.
- Faculty Liaison for PhD, Geography GSA, University at Buffalo - SUNY, Sept. 2022-May. 2024, USA.
- Conference Assistant, 2023 AAG Annual Meeting, Mar. 23-27, 2023, USA.