

MD ZAKARIA SALIM

Geospatial Data Scientist

📍 NES 320, School of Geosciences, University of South Florida, Tampa, FL 33620

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CORE COMPETENCIES

Technical Skills: ArcGIS Pro, QGIS, ENVI, Python, R, SNAP, SeaDAS, Illustrator, InDesign, Photoshop

Research Areas: [Flood Risk Assessment](#) • [Environmental Justice](#) • [Machine Learning](#) • [Geostatistics](#) • [Health Applications](#)

Academic Profiles: [ResearchGate](#) • [Google Scholar](#) • [ORCID](#) • [GitHub](#)

PROFESSIONAL EXPERIENCE

Graduate Research Associate

University of South Florida | Tampa, FL | Aug 2024 - Present

- Develop advanced spatial analysis frameworks for flood risk assessment, integrating multi-source data to enhance prediction accuracy and inform policy decisions
- Automate multi-source geospatial workflows in Google Earth Engine and ArcPy, integrating flood, census, and parcel data at scale.

Graduate Teaching Assistant

University of South Florida | Tampa, FL | Aug 2022 - May 2024

- Provided academic support to students by addressing queries related to lab and course materials during designated office hours
- Mentored undergraduate students through complex course materials, implemented innovative teaching methods, and fostered an inclusive learning environment

Associate GIS Analyst

Tiller Easing Spatial Solution | Dhaka, Bangladesh | Nov 2019 - Jun 2022

- Streamlined data collection workflows by implementing automated GIS processes, reducing project completion time while maintaining high accuracy standards
 - Coordinated with cross-functional teams to analyze spatial patterns and develop solutions for complex urban planning challenges.
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EDUCATION

Ph.D. in Geography, Environmental Science & Policy

University of South Florida | Tampa, FL | Aug 2024 - Present

Fellowship Award 2024-25

M.A. in Geography

University of South Florida | Tampa, FL | Aug 2022 - May 2024

Graduate Assistantship 2022-24 | GPA: 3.8/4.0

Bachelor of Urban and Regional Planning

Khulna University of Engineering & Technology | Bangladesh | Apr 2015 - May 2019

Technical Scholarship 2015-16

RESEARCH PROJECTS

Current PhD Research

"From Vulnerability to Disparity: A National-Scale Spatiotemporal Assessment of Flood Exposure Disparities Across the Contiguous United States"

University of South Florida | 2026-Now

- Developing the Hazard Disparities Index (HDI) using high-resolution Fathom-US flood maps to assess spatiotemporal flood exposure disparities across socioeconomically disadvantaged groups in the contiguous United States from 2010 to 2024.
- Identifying overlooked high-risk residential areas and quantifying the degree of disparity experienced by disadvantaged communities across counties.

Past Research

"A Probabilistic Framework for Parcel-Level Social Vulnerability Mapping Using Population Synthesis and Machine Learning"

University of South Florida | 2025-2026

- Developed a downscaling framework that disaggregates census block group data to individual land parcels for fine-scale disaster vulnerability assessment.
- Produced a parcel-level dataset with socioeconomic probabilities for individual land parcels, enabling precise identification of vulnerable populations and properties in flood and hurricane events.

SELECTED PUBLICATIONS

1. **Salim, M. Z.**, Qiang, Y., Dixon, B., Sahagún-Covarrubias, S., & Yan, E. (2025). Did official flood maps work in Hurricane Helene? Systematic evaluation of official flood maps with ground-truth observations. *International Journal of Disaster Risk Reduction*, 131, 105912. <https://doi.org/10.1016/j.ijdrr.2025.105912>
2. **Salim, M. Z.**, Rahman, M. H., Kafy, A. A., Altuwaijri, H. A., Fattah, M. A., & Choudhari, N. (2025). Automated geospatial workflow for spatiotemporal assessment of urban expansion influence on deforestation in Northeast Florida. *Kuwait Journal of Science*, 100453. <https://doi.org/10.1016/j.kjs.2025.100453>
3. Han, L., Qiang, Y., Ma, C., Li, X., **Salim, Z.**, Bhandari, R., Alsharif, K. A., & Jin, H. (2025). Spatial pattern and socioeconomic factors of 2022 monkeypox outbreak in the United States. *The Professional Geographer*, 1-12. <https://doi.org/10.1080/00330124.2025.2474445>
4. **Salim, M. Z.**, Qiang, Y., Dixon, B., & Collins, J. (2024). A disparate disaster: spatial patterns of building damage caused by Hurricane Ian and associated Socio-Economic factors. *Remote Sensing*, 16(20), 3792. <https://doi.org/10.3390/rs16203792>
5. **Salim, M. Z.**, Choudhari, N., Kafy, A. A., Nath, H., Alsulamy, S., Rahaman, Z. A., Aldosary, A. S., Rahmand, M. T., & Al-Ramadan, B. (2024). A comprehensive review of navigating urbanization induced climate change complexities for sustainable groundwater resources management in the Indian subcontinent. *Groundwater for Sustainable Development*, 25, 101115. <https://doi.org/10.1016/j.gsd.2024.101115>
6. **Salim, M. Z.**, Kafy, A. A., Altuwaijri, H. A., Miah, M. T., Jodder, P. K., & Rahaman, Z. A. (2024). Quantitative evaluation of damage assessment of Hurricane Ian on urban vegetation dynamics utilizing Landsat 9 in Fort Myers, Florida. *Physics and Chemistry of the Earth Parts a/B/C*, 103750. <https://doi.org/10.1016/j.pce.2024.103750>
7. **Salim, M. Z.** (2022). Delineation of Flooded Areas using Remote Sensing Technology. *2nd International Conference on Urban and Regional Planning (ICURP)*, Bangladesh. <https://doi.org/10.5281/zenodo.15707857>

PROFESSIONAL SERVICE & CONTRIBUTIONS

Peer Reviewer for Academic Journals

- Communications Earth & Environment, Environmental Monitoring & Assessment, Scientific Reports, Economics of Disasters & Climate Change, Discover Geoscience

Professional Affiliations

- Member, Phi Kappa Phi Society (2023-Present)
- Treasurer, GIS Club, University of South Florida, Tampa (2024-Present)

Professional Development & Certifications

- Python for Everyone - Esri (Jul 2024-Jul 2025)
- Convolutional Neural Networks - deeplearning.ai (Feb-Mar 2024)
- GIS Data Formats, Design, and Quality - UC Davis (Sep-Oct 2022)