Rohan Singh Wilkho (he/him/his)
Schmidt AI in Science Postdoctoral Associate
School of Civil and Environmental Engineering
Cornell University

527 College Avenue, Ithaca, NY 14850
+1 (979) 549-8904 | rohan.wins@cornell.edu
Website | Google Scholar | LinkedIn

EDUCATION

Doctor of Philosophy (Ph.D.) in Civil Engineering, Texas A&M University *Jan 2019 – Aug 2024*
Thesis: Advancing Disaster Informatics: AI-enabled Web Harvesting for Informing Flash Flood Mitigation Planning
CGPA: 4.0/4.0

Master of Computer Science (MCS), Texas A&M University *Aug 2021 – May 2024*
Specialization: Artificial Intelligence and Machine Learning
CGPA: 3.89/4.0

Graduate Certificate in Geographic Information Sciences, Texas A&M University *Aug 2022 – Apr 2024*
CGPA: 4.0/4.0

Bachelor of Engineering (BE) in Civil Engineering, Jadavpur University *Aug 2012 – Jun 2016*
CGPA: 8.77/10 (Rank – 2 out of 87)

RESEARCH EXPERIENCE

Schmidt AI in Science Postdoctoral Associate, Cornell University *Oct 2025 – Present*
Funded by: Schmidt AI in Science Postdoctoral Fellowship, Schmidt Sciences VIEW Program, NSF #2423091

- Decoding decision-making in managed hydrologic systems with inverse reinforcement learning
- Mapping irrigation canal infrastructure through remote sensing and computer vision
- Characterizing agricultural water demand through satellite-based crop classification
- Estimating reservoir bathymetry through physics-informed machine learning

Postdoctoral Researcher, Texas A&M University (TAMU) *Sep 2024 – Dec 2025*
(part-time from Oct 2025 to Dec 2025)
Funded by: FHWA AMR, USACE, TxDOT

- Enhancing flood modeling accuracy through sparse LiDAR-driven DEM correction
- Monitoring pavement condition through an integrated remote sensing and AI framework
- Automating flood control culvert inspection through robotic computer vision

Graduate Research Assistant, TAMU *Jan 2019 – Aug 2024*
Funded by: NSF #1931301, NSF #2318203

- Reconstructing community-scale flash flood impacts through AI-driven web harvesting
- Assessing dynamic community susceptibility to flash flooding
- Forecasting flash flood human and economic impacts through probabilistic methods
- Assessing flood resilience through AI-augmented digital twins

SELECTED HONORS AND AWARDS

- Schmidt AI in Science Postdoctoral Fellowship, Cornell University *2025*
- 1st Runner-Up at the Zachry Department of Civil and Environmental Engineering 3MT Thesis Competition *2024*
- J. Malon Southerland '65 Aggie Leader Scholarship, TAMU *2023*
- Graduate Student Leadership & Service Award, Department of Civil and Environmental Engineering, TAMU *2023*
- 1st Runner-Up at the Association of State Flood Plain Managers 2023 Student Paper Competition *2023*
- Richard Lietz Memorial Scholarship, TAMU Association for Former Students *2023*
- Montgomery Award, Graduate and Professional School, TAMU *2023*
- Herman F. Heep Scholarship & Achievement Award, TAMU Association for Former Students *2022*
- President's Outstanding Service Award, TAMU Graduate and Professional Student Government *2022*
- Academic Excellence Scholarship, American Association of Indian Engineers and Architects *2021*
- President's Community Award, TAMU Graduate and Professional Student Government *2021*
- Academic Excellence Scholarship, Department of Civil and Environmental Engineering, TAMU *2020*
- Academic Excellence Scholarship, Department of Civil and Environmental Engineering, TAMU *2019*

FUNDED RESEARCH GRANTS

[G4] **Empire AI Computing Resources:** Learning and Simulating Human Actions via Inverse Reinforcement Learning for Resilient River Basin Management
- PI: Stefano Galelli, Cornell University
- Role: Co-PI
- Funding Agency: Empire AI
- Amount: 8,569 GPU service units (≈8,570 NVIDIA H100 GPU-hours) on Empire AI's H100/B200 clusters

[G3] **Federal Highway Administration (FHWA) Accelerating Market Readiness (AMR):** Integrated Remote Sensing and AI for Pavement Condition Monitoring
- PI: Nasir G. Gharaibeh, Texas A&M University
- Role: Co-PI, Lead developer
- Funding Agency: Federal Highway Administration
- Amount: $300,000

[G2] **Schmidt AI in Science Postdoctoral Fellowship:** Learning and Simulating Human Actions via Inverse Reinforcement Learning for Resilient River Basin Management
- PI: Rohan Singh Wilkho, Cornell University
- Role: PI
- Funding Agency: Schmidt Sciences
- Amount: $160,000

[G1] **NSF # 1931301:** Reducing the Human Impacts of Flash Floods: Development of Microdata and Causal Model to Inform Mitigation and Preparedness
- PI: Nasir G. Gharaibeh, Texas A&M University
- Role: Co-author, Participant, Lead developer
- Funding Agency: National Science Foundation
- Amount: $350,000

PEER-REVIEWED JOURNAL ARTICLES

Water and Flood Science

[J16] **Wilkho, R.S.**, Feng, Z., Herman, J. & Galelli, S. "Decoding decision-making in managed hydrologic systems with inverse reinforcement learning," Water Resources Research *(Under 2nd Review Round)*

[J15] Maghaydah, A.*, **Wilkho, R.S.** *, & Gharaibeh, N.G. "Outlier-Based Analysis of Community Flood Resilience: A Case Study from Harris County, Texas," ASCE Natural Hazards Review (* Equal Contribution) *(Under 3rd Review Round)*

[J14] Huang, A., **Wilkho, R.S.**, & Gharaibeh, N.G. (2026) "Constraint-Based DEM Enhancement Using LiDAR Data at Sparse Highway-Bridge Locations," ASCE Journal of Surveying Engineering, 152(4), 05026006

[J13] Mandal, D., Zou, L., Wadhwa, A., **Wilkho, R.S.**, Cai, Z., Zhou, B., Ye, X., Newman, G., Gharaibeh, N., & Güneralp, B. (2026). "FlowsDT: A Geospatial Digital Twin for Navigating Urban Flood Dynamics," Computers, Environment and Urban Systems, 126, 102414 (Citations - 3)

[J12] **Wilkho, R.S.**, & Gharaibeh, N.G. (2025). "FF-NER: A named entity recognition model for harvesting web-based information about flash floods and related infrastructure impacts," International Journal of Disaster Risk Reduction, 125, 105604 (Citations - 9)

[J11] **Wilkho, R.S.**, Gharaibeh, N.G., & Chang, S. (2025). "A GIS-based tool for dynamic assessment of community susceptibility to flash flooding," Journal of Flood Risk Management, 18(1), e13049 (Citations - 8)

[J10] **Wilkho, R.S.**, Chang, S., & Gharaibeh, N.G. (2024). "FF-BERT: A BERT-based ensemble for automated classification of web-based text on flash flood events," Advanced Engineering Informatics, 59, 102293 (Citations - 58)

[J9] **Wilkho, R.S.**, Gharaibeh, N.G., Chang, S., & Zou, L. (2023). "FF-IR: An information retrieval system for flash flood events developed by integrating public-domain data and machine learning." Environmental Modelling & Software, 167, 105734 (Citations - 10)

[J8] Chang, S., **Wilkho, R.S.**, Gharaibeh, N., Sansom, G., Meyer, M., Olivera, F., & Zou, L. (2023). Environmental, climatic, and situational factors influencing the probability of fatality or injury occurrence in flash flooding: a rare event logistic regression predictive model. Natural Hazards, 116(3), 3957-3978 (Citations - 10)

[J7] Chang, S., **Wilkho, R.S.**, Gharaibeh, N.G., Lyle, S., & Zou, L. (2023). "Predicting Flash Flood Economic Damage at the Community Scale: Empirical Zero-Inflated Model with Semicontinuous Data." ASCE Natural Hazards Review, 24(4), 04023030 (Citations - 10)

Infrastructure Science

[J6] Ahmed, A., Sahu, S., **Wilkho, R.S.**, & Gharaibeh, N.G. "CulvertVision2.0: Advancing Automated Culvert Condition Assessment via Multi-modal AI," ASCE Journal of Computing in Civil Engineering *(In Preparation)*

[J5] **Wilkho, R.S.**, & Gharaibeh, N.G. "Satellite-to-Street: A Generative Deep Learning Framework for Pavement Condition Assessment from Satellite Imagery," ASCE Journal of Computing in Civil Engineering *(Submitted)*

[J4] **Wilkho, R.S.**, Huang, A., Pitta, V., Ahmed, A., & Gharaibeh, N.G. (2026) "CulvertVision: Advancing AI-Augmented Inspection and Condition Assessment of Culverts," ASCE Journal of Infrastructure Systems, 32(4), 04026026

[J3] Mandal, D., Zou, L., **Wilkho, R.S.**, Abedin, J., Zhou, B., Cai, H., Baig, F., Gharaibeh, N.G., Lam, N. (2024). "PRIME: A CyberGIS Platform for Resilience Inference Measurement and Enhancement," Computers, Environment and Urban Systems, 114, 102197 (Citations - 8)

Earlier Work

[J2] **Wilkho, R.S.**, & Guha, H. (2017). "Acoustic Assessment of a Precast Factory in Kolkata, India." Journal of Management and Sustainability, 7(4), 142

[J1] **Wilkho, R.S.**, Ashraf, S.S., Das, M.S., Thakur, B., & Roy, A. (2016) "Assessment of the Sustainability Performance of a Typical Residential Apartment in Kolkata," Journal of Civil Engineering and Environmental Technology

PEER-REVIEWED CONFERENCE ARTICLES

[CA2] **Wilkho, R.S.** & Gharaibeh, N.G. (2023). "A GIS Tool for Assessing Community Susceptibility to Flash Flooding", 2023 ASFPM National Conference, Raleigh, 2023 ***(2nd prize in student paper competition)***

[CA1] **Wilkho, R.S.**, & Guha, H. (2017). "Sustainable building policy management in Kolkata, India," In 2017 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM) (pp. 1631-1635). IEEE

CONFERENCE PROCEEDINGS

[CP13] **Wilkho, R.S.** & Gharaibeh, N.G. (2025). "From Satellites to Streets: A Remote Sensing and AI Framework for Pavement Management", 15th National Conference on Transportation Asset Management, Chicago, USA

[CP12] **Wilkho, R.S.**, & Gharaibeh, N.G. (2023). "DFFS: Dynamic Flash Flood Susceptibility." 2023 AGU Fall Meeting, San Francisco, California, USA

[CP11] Mandal, D., Zou, L., **Wilkho, R.S.**, Abedin, J., Zhou, B., Cai, H. (2023) "Empowering Disaster Resilience through Cyberinfrastructure: A Multi-Scale Approach to Visualization and Management." 2023 AGU Fall Meeting, San Francisco, California, USA

[CP10] Mandal, D., Zou, L., **Wilkho, R.S.**, Abedin, J., Zhou, B., Cai, H., & Baig, F. (2023). "Disaster Resilience in the Age of Cyberinfrastructure: A Customizable Approach." 2023 Southwest Division of the American Association of Geographers Annual Meeting, Laredo, Texas, USA

[CP9] **Wilkho, R.S.**, & Gharaibeh, N.G. (2023). "Flood Finder: An AI-enhanced internet search and information retrieval system for flash flooding." 2023 Researcher's Meeting, Natural Hazards Center, University of Colorado, Boulder, Colorado, USA

[CP8] **Wilkho, R.S.**, & Gharaibeh, N.G. (2023). "Using Causal Discovery to Assess Flash Flood Susceptibility." 2023 Disaster PRIMR, Prairie View A&M University, Prairie View, Texas, USA

[CP7] **Wilkho, R.S.**, Chang, S. & Gharaibeh, N.G., (2022). "Community Susceptibility to Flash Flooding in Three Texas Urban Regions." 2022 Researcher's Meeting, Natural Hazards Center, University of Colorado, Boulder, Colorado, USA

[CP6] **Wilkho, R.S.**, Chang, S. & Gharaibeh, N.G., (2022). "Dynamic Assessment of Flash Flood Susceptibility at the Census Tract level." 2022 Disaster PRIMR, University of North Texas, Denton, Texas, USA

[CP5] **Wilkho, R.S**., Chang, S., Gharaibeh, N.G., & Zou, L. (2021). "Domain Specific Internet Search Engine for Flash Flood Events." 2021 Researcher's Meeting, Natural Hazards Center, University of Colorado, Boulder, Colorado

[CP4] **Wilkho, R.S.,** Chang, S., Gharaibeh, N.G., & Zou, L. (2021). "Assembling Micro-Data on Flash Flood Events." Disaster PRIMR @ Texas A&M University engagement in Disaster Preparedness Response Mitigation & Recovery, College Station, Texas, USA

[CP3] Chang, S., **Wilkho, R.S.**, Gharaibeh, N.G., Sansom, G., Olivera, F., & Meyer, M. (2021). "Characteristics of Texas Communities Impacted by Flash Flooding." Disaster PRIMR @ Texas A&M University engagement in Disaster Preparedness Response Mitigation & Recovery, College Station, Texas, USA

[CP2] Gharaibeh, N.G., **Wilkho, R.S.**, Chang, S., Meyer, M., Olivera, F., Zou, L., & Sansom, G. (2020). "Ongoing Research on Reducing the Safety Risk of Flash Flooding." Texas Floodplain Management Association Summit

[CP1] **Wilkho, R.S.**, Ashraf, S.S, Das, M.S., Thakur, B., & Roy, A. (2016). "Assessment of the Sustainability Performance of a Typical Residential Apartment in Kolkata." International Conference on Emerging Technologies in Civil Engineering, Architecture and Environmental Engineering for Global Sustainability, New Delhi, India

TEACHING EXPERIENCE

Visiting Lecturer, Texas A&M University *Jan 2025 – May 2025*

- Designed CVEN 303 (CE Measurement) for 68 undergraduates, integrating field applications with surveying theory
- Developed hands-on modules with modern geospatial instruments for practical skill development

Graduate Teaching Assistant, Texas A&M University *Aug 2022 – Mar 2024*

- Designed lab materials for 160+ students, connecting theory to engineering applications
- Introduced advanced geospatial tools into coursework, enhancing hands-on learning and student engagement

MENTORSHIP EXPERIENCE

- Amit Kumar Singh, Visiting Ph.D. Student, Civil and Environmental Engineering, Cornell University *2026 – Present*
- Maoz Bizan, M.Eng Student, Systems Engineering, Cornell University *2026 – Present*
- Thachakrit Komolkhetruck, M.Eng Student, Computer Science, Cornell University *2026*
- Sanjit Sahu, M.S. Student, Computer Science, Texas A&M University *2026 – Present*
- Afreen Ahmed, M.S. Student, Computer Science, Texas A&M University *2025 – Present*
- Ada Huang, Ph.D. Student, Thesis: "*Advancing the Application of Mobile Lidar in Infrastructure Management*", Civil Engineering, Texas A&M University *2024 – 2025*
- Souvik Biswas, M.S. Student, Civil Engineering, Texas A&M University *2025*
- Shreyas Shivakumar Kasetty, M.S. Student, Computer Science, Texas A&M University *2024 – 2025*
- Venkat Pitta, M.S. Student, Computer Science, Texas A&M University *2024 – 2025*

INVITED WORKSHOPS

- "NOAA Workshop on Advancing Social and Physical Science Data to Reduce Flood Losses," Natural Hazards Center, University of Colorado, Boulder, April 20-22, 2026
- "Schmidt Sciences AI in Science Fellows Writing Retreat," The Banbury Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, May 10-15, 2026
- "AI for Multimodal Science," University of California, San Diego, June 23-25, 2026
- "Schmidt Sciences Entrepreneurship Retreat," The Banbury Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, October 11-14, 2026
- "Fall School on Agentic AI in Science," University of Toronto, Toronto, Canada, October 18-22, 2026

INVITED TALKS/LECTURES

- "What Are They Optimizing For? Inverse Reinforcement Learning for Inferring Hidden Objectives from Observed Decisions," AIMS 2026, University of California, San Diego, June 25, 2026

- "Modeling the operations of reservoir systems with LLMs and Inverse Reinforcement Learning," MultiSector Dynamics, June 23, 2026
- "Stochastic Model Predictive Control," School of Civil and Environmental Engineering, Cornell University, April 14, 2026
- "Cognitive Civil Systems: From Multimodal Sensing to Behavioral Sensing," Department of Civil Engineering, Indian Institute of Technology, Bombay, December 24, 2025
- "Contemporary Applications of Geographic Information Systems (GIS)," Stetson University, Institute of Water and Environmental Resilience, March 27, 2023

TECHNOLOGY TRANSLATION & DEPLOYMENT

- **Partner and AI Engineer**, InfraFrame—spin-off commercializing Road-Lens; piloting AI-driven pavement condition assessment with US municipal agencies under an FHWA Accelerating Market Readiness Award
- Co-developed FloodFinder360, a public platform deploying FloodFinder's AI pipeline to harvest hyper-local impact records of historical flash floods for researchers, practitioners, and emergency planners

SELECTED SERVICES

Journal Paper Reviewer (44 Peer Reviews, 20 Journals)

- ASCE: ASCE Natural Hazards Review, ASCE Journal of Infrastructure Systems
- Elsevier: Advanced Engineering Informatics, Automation in Construction, Applied Geography, Environmental Development, International Journal of Disaster Risk Reduction, Journal of Urban Management, Progress in Disaster Science, Reliability Engineering & System Safety, Sustainable Cities and Society, World Development Sustainability
- Springer: BMC Public Health, Discover Applied Sciences, Natural Hazards, Scientific Reports
- Taylor & Francis: Geocarto International, Geomatics, Natural Hazards and Risk, Geo-spatial Information Science
- Wiley: Earth's Future

Journal Editorial Team

- Environmental Management and Sustainable Development
- Sustainable Cities and Society

Membership in Professional Societies

- American Society of Civil Engineers
- American Geophysical Union

Scientific Leadership

- Lead Convener, SustAInabled: AI in Science for Sustainability—international workshop for Schmidt AI in Science Fellows, funded by Schmidt Sciences, 2027
- Co-Convener, Session: MultiSector Dynamics: AI for Complex Adaptive Human–Earth Systems, AGU Fall Meeting 2026
- Early Career Convener, Session: Empowering Resilience to Climatic and Environmental Hazards Through Geospatial Data Science I, AGU Fall Meeting 2023

Departmental Services

- President, Civil and Environmental Engineering Graduate Student Association 2022 – 2023
- Vice President, Civil and Environmental Engineering Graduate Student Association 2020 – 2022
- Officer, Civil and Environmental Engineering Graduate Student Association 2019 – 2020

University Services

- Speaker and Executive VP, Texas A&M Graduate & Professional Student Government 2022 – 2023
- Vice President of Information, Texas A&M Graduate & Professional Student Government 2020 – 2022
- Senator, Texas A&M Graduate and Professional Student Government 2019 – 2020

INDUSTRY EXPERIENCE

Data Science Intern, Pioneer Natural Resources *May 2022 – Aug 2022*

- Built real-time ML model (93% accuracy) for test-in-well identification from sensor data
- Automated detection process through stakeholder-driven feature engineering

Graduate Engineer Trainee, Engineer I & II, Afcons Infrastructure Ltd. *Jul 2016 – Dec 2018*

- Led soil stabilization for India's first underwater tunnel using advanced grouting techniques
- Managed tunnel boring beneath riverbed and delivered 8 cross-passages in 6 months
- Implemented TAM/compensation grouting to prevent structural failures and water leakage