



ANGSHUMAN M. SAHARIA, PH.D.

Water Resources Engineer / Research Scientist

Angshuman Saharia, Ph.D., is a Water Resources Engineer / Research Scientist at The Water Institute with a robust academic and research background, specializing in hydrodynamic, hydrologic, and contaminant modeling. His work integrates advanced computational tools like machine learning and high-performance computing with traditional environmental modeling techniques to address critical water management challenges.

ORGANIZATION ROLE

Water Resources Engineer

PROJECT ROLE / FOCUS AREAS

Hydrodynamic modeling

Hydrologic modeling

Contaminant modeling

Machine learning

High-performance computing

EDUCATION

Ph.D., Civil Engineering, University at Buffalo, New York, 2022

MS, Water Resources Engineering, Indian Institute of Technology Guwahati / RWTH Aachen, Germany (DAAD scholar), 2016

BS, Civil Engineering, Tezpur University, India, 2013

PROFESSIONAL MEMBERSHIPS

ASCE

At The Water Institute, Angshuman contribution to significant projects like the Louisiana Watershed Initiative (LWI) and the Texas General Land Office (GLO) River Basin Flood Study has showcased his ability to enhance large-scale hydrologic frameworks, effectively translating complex research into actionable strategies for flood risk mitigation and environmental resilience. His academic career is marked by contributions to teaching and mentoring, preparing students to excel in dynamic professional environments.

PROFESSIONAL EXPERIENCE

2022–Present: Water Resources Engineer/Research Scientist, The Water Institute

2017–2022: Research Assistant, University at Buffalo, New York

2016–2017: Junior Research Fellow, Indian Institute of Technology Guwahati

2014–2015: Teaching Assistant, Indian Institute of Technology Guwahati

2011: Intern, Gammon India Limited

TECHNICAL PROFICIENCY

Language: C, FORTRAN, MATLAB, Python, R, SQL

Software: AutoCAD, ArcGIS, EFDC, HEC- DSS, HEC-HMS, HEC- RAS, Hydrus 1D, Panoply, Plaxis, SAS, STANMOD, SWAT, SWMM, Tecplot



SELECTED PROJECTS

Louisiana Watershed Initiative. *State of Louisiana (2022–Present)*. Modeler. Responsibilities: Implement hydrological and hydraulic modeling on compound floods. Prepare model input data, perform data analysis, and optimize sampling methods to improve model accuracy and reliability. Used technologies including Automation, GIS, HEC-DSS, HEC-HMS, HEC-RAS, High-Performance Computing (HPC), and Python. Enhanced flood risk assessment models, influencing water management policies across multiple jurisdictions.

Texas General Land Office River Basin Flood Study (2022–Present). Modeler. Conduct hydraulic modeling for both tropical and non-tropical storms. Develop compound flood hazard maps using joint probability methods, uncertainty, and bias quantification. Technologies: GIS, HEC-DSS, HEC-RAS, Python
Impact: Advanced understanding of compound flooding risks, contributing to regional planning and disaster mitigation strategies.

Ph.D. Thesis: Modeling for Contamination and Flood Risks in Freshwater Coastal Urban River Systems. *University at Buffalo, New York (2017–2022)*. Evaluated interactions among floods, sediment transport, and microbial contamination from urban sewers. Methods: Integrated multiple modeling frameworks to assess risk. Technologies: EFDC, HEC-RAS, High-Performance Computing, Python, R, SWAT, SWMM. Publications: Results contributed to several peer-reviewed articles focusing on urban water safety and compound flooding.

Research Assistantship Project: Compound Flooding from Lake Seiche and Flow in a Freshwater Coastal River. *University at Buffalo, New York (2017–2019)*. Analyzed compound impacts on water levels caused by seiche and river flow using a hydrodynamic model and copula-based joint probability distribution. Technologies: EFDC, HEC-RAS, R, SWMM. Impact: Provided new insights into the probability of compound events, aiding in local flood preparedness initiatives.

SELECTED PUBLICATIONS

1. Saharia, A.M., Zhu, Z. and Atkinson, J.F., 2021. Compound flooding from lake seiche and river flow in a freshwater coastal river. *Journal of Hydrology*, p.126969. (I.F. 6.4)
2. Saharia, A.M., Zhu, Z., Aich, N., Baalousha, M. and Atkinson, J.F., 2019. Modeling the transport of titanium dioxide nanomaterials from combined sewer overflows in an urban river. *Science of the Total Environment*, 696, p.133904. (I.F. 10.753)
3. Saharia, A.M., and Sarma, A.K., 2018. Future climate change impact evaluation on hydrologic processes in the Bharalu and Basistha basins using SWAT model. *Natural Hazards*, 92(3), pp.1463-1488. (I.F. 3.7)
4. Hui, Y., Zhu, Z., Atkinson, J.F. and Saharia, A.M., 2021. Impacts of phosphorus loading temporal pattern on benthic algae growth in Lake Ontario. *Journal of Hydrology*, 598, p.126449. (I.F. 6.4)
5. Saharia, A.M., Zhu, Z. and Atkinson, J.F., 2022. Modeling framework for microbial pollution assessment in an urban freshwater coastal river (ongoing)