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The Water Institute  
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## **EDUCATION**

University at Buffalo	Buffalo, NY	Water Resources Engineering	Ph.D., 2022
Indian Institute of Technology Guwahati/RWTH Aachen University (DAAD scholar)	Guwahati, India/Aachen, Germany	Water Resources Engineering	MS, 2016
Tezpur University	Tezpur, India	Civil Engineering	BS, 2013

## **RESEARCH INTERESTS**

Hydrodynamic modeling, hydrology, water quality modeling, machine learning, high-performance computing.

## **PROFESSIONAL EXPERIENCE**

The Water Institute	Research Scientist/Engineer	2022–Present
University at Buffalo	Research Assistant	2017–2022
Indian Institute of Technology Guwahati	Junior Research Fellow	2016–2017
	Teaching Assistant	2014–2015
Gammon India Limited	Intern	2011

## **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

## **PROFESSIONAL SOCIETY MEMBERSHIPS**

- American Society of Civil Engineers, 2022

## **AWARDS AND HONORS**

- Brown Foundation award for top 3 proposals at The Water Institute, 2023.
- DAAD Scholarship at RWTH Aachen University, Germany for M. Tech project work, 2015–2016.
- Qualified for the Graduate Aptitude Test in Engineering, GATE Score of 580 (97.5 percentile), 2014.
- 1st rank in M. Tech (MS), 2nd rank in B. Tech (BS), highest marks in the Sipajhar center in class X (HSLC 2007) exam, and 3rd rank in Darrang district (Assam).

## **SELECTED PROJECTS**

### **Modeler/Louisiana Watershed Initiative**

Current

*State of Louisiana*

Implemented hydrological and hydraulic modeling on compound floods. Prepared model, input data, performed data analysis, and optimized sampling methods to improve model accuracy and reliability. Technologies: Automation, GIS, HEC-DSS, HEC-HMS, HEC-RAS, High-Performance Computing (HPC), Python. Enhanced flood risk assessment models, influenced water management policies across multiple jurisdictions.

### **Modeler/River Basin Flood Study**

Current

*Texas General Land Office*

Conducted hydraulic modeling for both tropical and non-tropical storms. Developed compound flood hazard maps using joint probability methods, uncertainty, and bias quantification. Technologies: GIS, HEC-DSS, HEC-RAS, Python. 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**

2017–2022

*University at Buffalo, New York*

Evaluated interactions among floods, sediment transport, and microbial contamination from urban skewers. Integrated multiple modeling frameworks to assess risk. Technologies: EFDC, HEC-RAS, High-Performance Computing, Python, R, SWAT, SWMM. Results contributed to several peer-reviewed articles focusing on urban water safety and compound flooding.

### **Research Assistant/Compound Flooding from Lake Seiche and Flow in a Freshwater Coastal River**

2017–2019

*University at Buffalo, New York*

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. Provided new insights into the probability of compound events, aiding in local flood preparedness initiatives.

**Junior Research Fellow/Morphological Studies of Rivers Brahmaputra, Subansiri, and Pagladia** 2016–2017

*Indian Institute of Technology Guwahati*

Used remote sensing and GIS for comprehensive river system analysis, including bank line delineation and channel evolution. Identified critical and vulnerable reaches, supporting regional conservation and river management efforts.

## **PUBLISHED WORKS**

### **Peer-Reviewed Publications**

Saharia, A., Zhu, Z., & Atkinson, J. (2021). Compound flooding from Lake Seiche and river flow in a freshwater coastal river. *Journal of Hydrology*, 603(B).

Saharia, A., Zhu, Z., Aich, N., Baalousha, M., & Atkinson, J. (2019). Modeling the transport of titanium dioxide nanomaterials from combined sewer overflows in an urban river. *Science of the Total Environment*, 696.

Saharia, A., & Sarma, A. (2018). Future climate change impact evaluation on hydrologic processes in the Bharalu and Basistha basins using SWAT model. *Natural Hazards*, 92(3), 1463–1488.

Hui, Y., Zhu, Z., Atkinson, J., & Saharia, A. (2021). Impacts of phosphorus loading temporal pattern on benthic algae growth in Lake Ontario. *Journal of Hydrology*, 598.

### **Conference Proceedings and Presentations**

Geldner, N.B., Johnson, D.R., Villarini, G., Yuil, B., Saharia, A., Grimley, L., Young, N., McManus, M., Roberts, H., & Misra, S. (2023). *Applied joint probabilistic modeling of compound coastal flood hazard: An extension of the joint probability method with optimal sampling.*

Saharia, A., Zhu, Z., & Atkinson, J. (2021). *Modeling the fate and transport of nanoparticles from combined sewer overflows in the Buffalo River.* IAGLR's Annual Conference on Great Lakes Research.

Saharia, A. M., Zhu, Z., Farhazedeh, A., & Atkinson, J. F. (2019). *Modeling the effects of seiche events in Lake Erie on Buffalo River flooding.* IAGLR's 62nd annual Conference on Great Lakes Research.