

ADITYA GUPTA

ASSOCIATE RESEARCHER

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PROFILE SUMMARY

Graduate engineer with demonstrated expertise in Hydraulic/Coastal/Groundwater engineering principles and infrastructure design. Good command of open-source tools/software and programming language that are designed to deal with real-life engineering problems. I believe that I am defined by the skills that I have acquired from the diverse environment and competitive university life, and I look forward to implementing and polish them in any opportunity that I receive.

EDUCATION

PhD (Water Resource (Ocean Group) & Structural Engineering) 2016–2021

IITB-MONASH Research Academy

Dissertation Title: "Peak Load Estimation due to Debris Flow During Tsunami and its Mitigation using Coastal Vegetation"

M.Tech. (Hydraulic Engineering) 2013–2015

Indian Institute of Technology, Roorkee

Thesis title "Modelling of Sediment Transport in a reach of Gandak River", sponsored by Bihar Pul Nirman Nigam Ltd. (BPNL).

B.Tech. (Civil Engineering) 2009–2013

SRM Institute of Science & Technology, Chennai

Project title: "Seismic Analysis of a six storied building using Lead-rubber base isolator".

WORK EXPERIENCE

ASSOCIATE RESEARCHER

April, 2022 - Current

Institute for Resilient Infrastructure Systems, Athens, USA

Part of a highly interdisciplinary team of scientists and researchers at the University of Georgia for the group "Network for Engineering with Nature (N-EWN)".

- ♦ Analyzing Hydrodynamic and morpho dynamic modelling of riverine and coastal systems.
- ♦ Developing guidelines for the design of natural infrastructure systems, probabilistic flood mapping and risk communication tools.

RESEARCH SCHOLAR

Monash University • Melbourne, Victoria

Sept,2018 – Aug, 2021

Project: "Tsunami interaction with coastal structure"

- Constructed a wave flume from scratch to carry out an experimental investigation and identify the critical condition when debris-laden tsunami exerts peak load on a column structure.
- Proposed a new empirical formula based on the Impulse-Momentum approach to investigate debris-laden tsunami loading on a building column.

RESEARCH SCHOLAR

Indian Institute of Technology, Bombay • Mumbai, Maharashtra

July,2016 – Aug, 2018

Project: "Numerical investigation of tsunami wave with coastal structures"

- Carried out extensive numerical modelling for the Fluid-Structure Interaction using Particle/Meshless-based method in the High-Performance Computer (HPC).
- Proposed a new algorithm to accurately estimate the peak impact loading of tsunami on a coastal structure.

ASSISTANT PROFESSOR, SCHOOL OF CIVIL ENGINEERING

Kalinga Institute of Industrial Technology • Bhubaneswar, Odisha

June,2015– June,2016

RESEARCH SCHOLAR

Indian Institute of Technology, Roorkee • Roorkee, Uttarakhand

May, 2014 – May, 2015

Project: "Remote Sensing, Mathematical and Hydraulic Model Study of River Gandak Connecting Gopalganj & Bettiah Along with Its Approaches and Protection Work".

- Collaborated with Bihar Pul Nirman Nigam Ltd. (BPNL) for the riverbank protection work on the Gandak river in the Gopalganj region.
- Constructed a big-scale physical model of the Gandak river and recommended submerged vanes at the channel bifurcation of Gandak river near village Bariyarpur. It was found extremely effective in silting and deactivating the channel resulting in its divergence.
- Trail Dykes supplemented with Jack Jetties were proposed that remarkably reduced the bank erosion and helped in protecting the road near Bariyarpur village by accelerating silting between the dykes.
- Performed Numerical/Mathematical Investigation on the sediment transport of the region using HEC-RAS, HEC-GeoRAS and Arc-GIS and validated it with experimental and field results.

SOFT SKILL

Leadership
Experience

Time Management

Computer
Proficiency

Collaboration
talent

TECHNICAL SKILL

Numerical
Modeling

Open Source tool

LaTex Proficiency

Proficient in hydraulic &
Hydrodynamic
Softwares

PUBLICATIONS

- **Gupta, A.**, Heidarpour, A., & Behera, M. R. (2022). Effect of structure orientation and debris initial orientation on peak debris loading during tsunami: An experimental and numerical investigation. Applied Ocean Research, 121, 103075.
- **Gupta A.**, Behera, M. R., & Heidarpour, A. (2020, August). Numerical Modeling of Wave Damping

Induced by Emerged Moving Vegetation. In ASME 2020 39th International Conference on Ocean, Offshore and Arctic Engineering. American Society of Mechanical Engineers Digital Collection.

- ♦ **Gupta A, M. Behera, A. Heidarpour**, 2019 “SPH-DEM modelling of tsunami driven floating debris and its trapping by coastal forest”, Royal Institution of Naval Architects.
 - ♦ **Gupta A, M. Behera, A. Heidarpour**, 2019 “Numerical modelling of hydrodynamic impact of tsunami on coastal structures in the presence of curved sea wall”, Proceedings of the Fourth International Conference in Ocean Engineering (ICOE2018) (pp. 547–558). Springer, Singapore.
 - ♦ **Gupta A, M. Behera, A. Heidarpour**, 2022 “Effectiveness of emergent coastal vegetation as a defense system to mitigate debris load on a structure during extreme event” (Under Review). Applied Ocean Research.
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AWARDS & GRANTS

- ♦ Teaching Excellence (Purple Letter) - Monash University (Sep 2019)
Recognized as excellent teaching staff (in the top 7.3% of all Monash units conducted during Semester 1, 2019).
- ♦ MHRD Scholarship of **Rs 3,00,000/-** IIT Roorkee (July'13 - May'15).
- ♦ IITB-Monash Research Grant of **Rs 7,68,000/-** IIT Bombay (July'16 - July'18).
- ♦ Monash University Grant of **AUD 50,000** (Sep'18 - Sept'20).