Saurav Dutta

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Professional Summary

Passionate about simplifying complex scientific concepts through data-driven methods. Skilled in computational mechanics and simulation with a strong foundation in algorithm design and mentoring.

Education

National Institute of Technology, Silchar, India Jul 2019 – Jun 2023
B.Tech. in Civil Engineering | *GPA:* ***9.03/10***

Professional Experience

Indian Institute of Science (IISc), Bengaluru
Project Associate-I, Mechanical Engineering | Advisor: Prof. Akshay Joshi Aug 2024 – Jul 2025
- Applied Bayesian ML for pattern discovery in complex material datasets, enabling interpretable segmentation
- Developed a Python tool for automated material boundary detection using interpretable priors

Project Associate-I, Aerospace Engineering | Advisor: Prof. Rajesh Chaunsali Jun 2023 – Jul 2024
- Simulated non-reciprocal mechanical lattices and analyzed wave propagation in MATLAB
- Designed a programmable pendulum platform with motor-based stiffness control for experiments

National Institute of Technology, Silchar
Undergraduate Researcher, Civil Engineering | Advisor: Prof. Atanu Sahu Jan 2023 – May 2023
- Simulated composite plates in ABAQUS under thermal and boundary condition variations

Indian Institute of Technology BHU, Varanasi
Summer Intern, Civil Engineering | Advisor: Prof. Vishwajit Anand May 2022 – Jul 2022
- Extended OpenSeismoMatlab to compute seismic parameters for fragility analysis

Achievements & Invited Talks

- Guest Lecture: *Wave Propagation in Designed Materials*, IISc Bangalore (Nov 2023)
- UG Research Fellowship recipient, NIT Silchar (Dec 2022)
- Top 5 percentile in JEE Mains (2019), Barak Valley Scholar
- Cleared PRMO and RMO (2017)

Publications

Journal (Under Review)
- Hetero-Bayesian-EUCLID: Model discovery for hyperelastic materials (*CMAME*)
- Seismic fragility features using soil-structure interaction (*Journal of Earthquake Engineering*)

Conferences
- EUCLID-based model segmentation of hyperelastic materials (ESMC 2025, Lyon, France)
- Framework for Ground Motion Characterization (8ICRAGEE 2024)

Leadership

- Head, Razzmatazz – Incandescence Fest, NIT Silchar (2023)
- Head, School Genius – Tecnoesis Tech Fest, NIT Silchar (2022)

Technical Skills

Languages: Python, MATLAB, LaTeX, C++, HTML
Libraries: PyTorch, TensorFlow, OpenCV, scikit-learn (K-means)
Software: Abaqus, ANSYS, COMSOL, AutoCAD
Prototyping Instrumentation: Arduino, Motor Control, 3D Printing, LDV