Saurav Dutta

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Education

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

Professional Experience

Vizuara AI Labs, Pune, India Sept 2025 – Present
Researcher cum Graduate Mentor
- Critically review and provide feedback on technical documents for clients, ensuring rigor and clarity
- Conduct research in Scientific Machine Learning (SciML) and Physics-informed AI for industrial and academic applications
- Mentor students and junior researchers on projects in AI-driven scientific discovery

Indian Institute of Science (IISc), Bengaluru Aug 2024 – Jul 2025
Research Associate, Mechanical Engineering
- Extended Bayesian-EUCLID framework for unsupervised segmentation and model discovery in heterogeneous hyperelastic materials
- Built a probabilistic Python tool leveraging interpretable priors for automated boundary detection in complex geometries

Indian Institute of Science (IISc), Bengaluru Jun 2023 – Jul 2024
Research Assistant, Aerospace Engineering
- Designed non-reciprocal lattices with engineered damping; derived dispersion relations and analyzed wave propagation in MATLAB
- Developed and experimentally validated a programmable pendulum system with motor-based stiffness control

Indian Institute of Technology BHU, Varanasi May 2022 – Jul 2022
Summer Research Intern
- Processed seismic wave records to extract 30+ intensity measures including spectra and ground parameters
- Enhanced OpenSeismoMatlab framework for fragility analysis by adding custom seismic metrics

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 Articles
- K.L. Chaurasiya, **S. Dutta**, S. Kumar, A. Joshi, *Hetero-EUCLID: Interpretable model discovery for heterogeneous hyperelastic materials* (Under review, CMAME), arXiv:2509.11784
- H.K. Sandhu, **S. Dutta**, R. Chaunsali, *Wave propagation in an elastic lattice with non-reciprocal stiffness and engineered damping* (Minor revision, JASA), arXiv:2507.23761
- S. Singh, M. Kumar, **S. Dutta**, V. Anand, *Identification of critical ground motion features for seismic fragility studies* (Under review)

Conferences / Book Chapters
- A. Joshi, **S. Dutta**, S. Kumar, *Hetero-EUCLID: Segmentation and discovery of hyperelastic models* (ESMC 2025)
- **S. Dutta**, V. Anand, *Framework for Ground Motion Characterization*, in *Seismic Hazard Analyses*, Springer (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
Software: Abaqus, ANSYS, COMSOL, AutoCAD, Mathematica
Prototyping & Instrumentation: Arduino, Motor Control, 3D Printing, LDV