

Indrashish Saha

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[LinkedIn](#) | [Google Scholar](#)

EDUCATION

- **Johns Hopkins University** Baltimore, MD
• *Ph.D. in Mechanics of Materials (Advisor: Prof. Lori Graham-Brady)* 2026 (Expected)
M.S. in Mechanical Engineering, GPA: 3.90/4.00 Dec. 2025
- **Indian Institute of Science** Bengaluru, India
• *M.Tech (Research) in Structural Engineering, GPA: 8.60/10.00* 2021
- **Jadavpur University** Kolkata, India
• *B.E. in Civil Engineering, GPA: 8.22/10.00* 2018

SKILLS SUMMARY

- **Programming:** Python, Fortran, C/C++
- **ML Frameworks:** PyTorch, TensorFlow, JAX, Scikit-learn
- **Numerical Tools:** Abaqus Explicit/Implicit (UEL/UMAT/VUMAT Subroutines), FEniCS, JAX-FEM
- **Soft Skills:** Writing, Presentations, Public Speaking, Time Management

EXPERIENCE

- **Johns Hopkins University**
 - *Graduate Research Assistant* Aug. 2021 - Present
 - **Research:** Developed computational and machine learning models for nonlinear material behavior.
 - **Scientific Communication:** Presented research findings at international conferences and academic seminars.
 - Hopkins Engineering Applications & Research Tutorials (HEART) Instructor* Aug. 2025 - Nov. 2025
 - **Teaching:** Developed and taught short course on applications of AI in mechanics of materials to undergraduate students.
- **Indian Institute of Science** Aug. 2019 - June 2021
 - *Graduate Research Assistant*
 - **Experiments:** Conducted fracture experiments on steel fiber reinforced concrete.
 - **Research:** Developed novel methods to analyze acoustic emission data using ML techniques.
- **Larsen & Toubro** July 2018 - Sept. 2018
 - *Graduate Engineer Trainee*

PROJECTS

- **Microstructure-informed void growth modeling:** Developing a data-driven model to predict void growth and ductile fracture in polycrystalline metals under high strain-rate loading.
- **Accelerated spall failure prediction:** Built neural operator models to accelerate prediction of spall failure from high-fidelity simulation data.
- **Crystal plasticity coupled cohesive zone fracture simulation:** Implemented CPFEM simulations coupled with cohesive zone models to study impact-induced fracture in polycrystalline materials.
- **Deep learning surrogate for nonlinear material behavior:** Developed a 3D U-Net surrogate model to approximate J_2 plasticity response in heterogeneous composite microstructures.
- **Fracture detection using acoustic emission signals:** Analyzed acoustic emission data from compression experiments to identify fracture initiation and instability.
- **Acoustic emission signal classification:** Designed waveform clustering algorithms to classify fracture-related acoustic emission signals in fiber-reinforced concrete.

SELECTED PUBLICATIONS

- **Saha, I.** and Graham-Brady, L. (2026) [Numerical and data-driven modeling of spall failure in polycrystalline ductile materials](#). *Computer Methods in Applied Mechanics and Engineering*.
- Khurjekar, I., **Saha, I.**, Graham-Brady, L., Goswami, S. (2025) [Enhanced accuracy through ensembling of randomly initialized auto-regressive models for time-dependent PDEs](#). *Machine Learning for Computational Science and Engineering*.
- **Saha, I.**, Gupta, A., Graham-Brady, L. (2023) [Prediction of local elasto-plastic stress and strain fields using a deep convolutional neural network](#). *Computer Methods in Applied Mechanics and Engineering*.
- **Saha, I.** and Vidya Sagar, R. (2022) [Statistical analysis of acoustic emission avalanches in compressive fracture](#). *International Journal of Fracture*.
- **Saha, I.** and Vidya Sagar, R. (2021) [Classification of acoustic emissions during tensile fracture in steel fiber reinforced concrete](#). *Construction and Building Materials*.

HONORS AND AWARDS

- Awarded HEMI day best poster prize 2026.
- Selected as an instructor for HEART program at Johns Hopkins University, Fall 2025.
- Awarded P.S. Narayana best M.Tech (Research) thesis at IISc, 2024.
- Was in **99.38 percentile** in **GATE** out of over 1.2 million candidates, 2019.