

Abhinav Gupta

guptaa@mit.edu
+1-617-800-3899

PhD candidate aspiring to launch a career in solving complex real-world problems for industry-leading businesses

Education

Massachusetts Institute of Technology

PhD in Mechanical Engineering and Computation (GPA: 4.9/5)

Cambridge, MA
Jan 2017 – May 2022

- Thesis: Scientific Machine Learning for Ocean Applications | Minor: Technology and Policy

Indian Institute of Technology Kanpur

Master's (GPA: 10/10) & Bachelor's (GPA: 9.9/10) in Mechanical Engineering

Kanpur, India
Jul 2011 – Jun 2016

- Department Rank - 1 | General Proficiency Medal; Banco Foundation Award; OP Bajaj Memorial Award
- Master's Thesis: Bayesian Inference of Obstacle Systems and Coupled Biogeochemical-Physical Model

Experience

Multidisciplinary Simulation, Estimation, Assimilation Systems (MSEAS) Lab, MIT

Research Assistant

Undergraduate Visiting Student (S.N. Bose Scholar)

Cambridge, MA
Jan 2017 – Present
Summer 2014 & 15

Research Profile:

- Advancing algorithms on the intersection of uncertainty quantification, Bayesian modeling and inference, machine learning, and data-driven scientific computing for high-dimensional and multidisciplinary problems
- Developing a partial-differential-equations-based Bayesian machine learning framework for model discovery; has applications in learning ocean ecosystem models, sustainable fisheries management, brain tumor modeling and more
- Developed a delay-differential-equations-based deep learning framework to learn closure models for dynamical systems; applications include refining coarse models, simplification of complex biochemical models, and more
- Published 2 first author and 10 co-author papers in peer-reviewed literature; 1 first author preprint
- 15 Research presentations: Including AGU Meetings (Dec'19; Feb'18); IEEE Oceans (Oct'19); IISc Bangalore (Jul'19); Indian Space Research Organization (Jul'19); SIAM, Computational Sc. and Eng. (Mar'19) | *SLAM Student Travel Award*

Programing Skills: MATLAB, Python, TensorFlow

Allied Contributions:

- Developing collaboration protocols to facilitate multi-university-research project across 5 universities
- Mentored 3 undergraduate and 3 high-school interns on research projects
- Helped generate ideas and contributed to the writing of in-total 5 research grants

Fellowships

MathWorks Mechanical Engineering Fellowship

2020 – 21

- Awarded to 3 out of 500 graduate students for exceptional academic performance

MIT-Tata Center for Technology & Design Fellow

2018 – 20

- Studied interplay of technology, entrepreneurship, and policy; and deepened perspectives on severely resource-constrained communities by interviewing Indian fishermen, non-profits, and government institutions

Leadership

Graduate Student Council Representative (2019-20) - Represented interests of Mechanical Engineering graduate students at institute-wide graduate student council

Cultural Chair, Sangam (2017-18) – Served the Indian community by organizing cultural events; led 8-member team to conduct 3-day orientation for incoming Indian students

Social Chair, Graduate Association of Mechanical Engineers, MIT (2019-20) • Hall Councilor, SP Grad Housing (2018-20)
• Secretary, Aeromodelling Club, IIT Kanpur (2012-13) • Student Guide, Counselling Service, IIT Kanpur (2012-13)

Hobbies

Hosting traditional Indian cuisine dinner nights • Exploring history and culture of different countries by collecting coins