

KAVYA AGARWAL

Email: Kavya.agarwal@yale.edu; phone: +1 (203) 627-7541

Education

Yale University, Graduate School of Arts and Sciences

New Haven, CT

Master of Science in Earth and Planetary Science

2023-Ongoing

Indian Institute of Technology Kanpur

Kanpur, India

Bachelor of Science in Earth Sciences

2019-2023

- **JST Sakura Science Program (2022):** 1 of 9 selected globally for a fully funded 20-day research program at the Earthquake Research Institute, University of Tokyo.
- **Honda YES Awardee (2021):** 1 of 14 students selected across 6 old IITs for excellence in science and technology; awarded a \$3,000 scholarship and eligible for a \$7,000 research grant to work in Japan (YES+)
- **SURGE Fellowship, IIT Kanpur (2012):** Recipient of the SURGE fellowship for summer research at IITK
- **Joint Entrance Examination, India (JEE 2019):** Qualified JEE, among top 1% of 1.2 million applicants
- **Puspa Garg Scholarship (2019):** For being best incoming sportsperson IITK amongst all undergrad students

Graduate Research Experience | Yale University

Physics-Informed Neural Networks for Alkalinity Transport

2025-Ongoing

Advisor: Dr. Lucas Gloege, Department of Earth and Planetary Science, Yale University

- Designed & trained physics-informed neural networks (PINNs) to model advection–diffusion dynamics governing marine alkalinity transport and CO₂ uptake using simulation data from Oceananigans code
- Testing model generalization of emulator across distinct forcing regimes to identify limits of predictive robustness
- Comparing data-only and physics-informed strategies and evaluated stability under progressive rollout

Modeling of Lithospheric Drip Instabilities

2023-2025

Advisor: Prof. David Bercovici, Department of Earth and Planetary Science, Yale University

- Developed reduced-order ODE models to study Rayleigh–Taylor-type instabilities in the lower lithosphere
- Performed parameter sweeps to analyse instability growth & grain size effects for lithospheric drip instabilities
- Worked on 2D convection code using ASPECT & wrote my own in Python using Finite difference methods

Undergraduate Research Experience

University of California, Los Angeles | Advisor: Prof. Carolina Lithgow-Bertelloni

Sep 2021- Aug 2022

- Conducted laboratory experiments on thermal plumes using corn-syrup tank setups and shadowgraph imaging
- Ran 2-D numerical simulations using ASPECT software to study dynamics and interaction of mantle plumes

University of Tokyo | Advisor: Prof. Yosuke Aoki, Earthquake Research Institute

Sep 2021- Aug 2022

- Analysed ALOS-2 InSAR data from 2015 to 2022 to study subsidence induced earthquakes in the Delhi region
- Generated interferograms & stacked time series to identify land subsidence regions & estimate deformation rates

IIT Kanpur | Advisor: Prof. Dibakar Ghosal, Department of Earth Science

Jan 2021 – Apr 2022

- Implemented shortest-path algorithms (Dijkstra & A*) in Python to model seismic ray paths under earth's surface
- Build a GUI using Python using Tkinter for a C++ based tool for gas hydrate modelling and subsurface imaging

Corporate Experience

Gan.AI | Associate Product Manager

Aug 2024 – Dec 2024

- Supported **feature development** in a fast-growing AI startup through **cross-functional collaboration**
- Built **analytics dashboards** to diagnose user behavior and feature-adoption bottlenecks

Apollo 24|7 | Trainee – Strategy and Partnerships

May 2021 – Dec 2021

- Supported **strategic partnerships** across B2B and B2C channels for a national digital healthcare platform
- Coordinated execution of large-scale partnerships, including nationwide **COVID-19 vaccination initiatives**

Leadership and Activities

- **Teaching Fellow, Yale University** (Spring 2024, Fall 2025) – Undergraduate course on Renewable Energy
- **McDougal Fellow, Yale** (2025-Present) – Led events for International student community at Yale
- **Vice President, Earth Science Society, IIT Kanpur** (2022-2023) – Led team of 10+ for departmental events
- **Captain, Table Tennis Team, IIT Kanpur** – Led team to multiple Inter-IIT Medals, managed operations

Relevant Coursework and Skills

- **Coursework:** Fundamentals of Geophysics, Geological Remote Sensing and GIS, Geomorphology and Earth Surface processes, Introduction to Environmental Science, Exploration Geophysics, Ordinary and Partial Differential Equations, Continuum Mechanics, Thermodynamics
- **Tools/Software:** Python, MATLAB, ASPECT, ArcGIS, ENVI, Paraview, GMT