

Neosha Gupta Narayanan

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Education

Massachusetts Institute of Technology

Cambridge, MA

Master of Science in Geophysics

July 2023

• *William Asbjornsen Albert Fellow 2022-23*

- I studied the relationships between subglacial hydrology and glacial surges and outburst floods in the Karakoram Himalayas of Pakistan. In this work, I used finite-element models and satellite imagery to better understand the causes behind unpredictable, catastrophic events that can cause severe damage to highland communities of northern Pakistan.

Bachelor of Science in Materials Science and Engineering

May 2022

- Concentrations: Environmental Systems; Writing

Amherst Regional High School

Amherst, MA

Valedictorian

June 2018

Research Experience

Indian Institute of Technology, Roorkee Hydrology Department

Roorkee, Uttarakhand, India

Guide: Prof. Dhyan Singh Arya

June-August 2022

- Performed literature review of glacial lake outburst flooding (GLOF) mechanisms in the Himalayas
- Identified vulnerable flood-prone areas using literature review and remote sensing data
- Used GIS to create a comprehensive inventory of glacial lakes in the Koshi River Valley in South Asia and used risk analysis to identify lakes most at risk for GLOF
- Conducted a field study of Suraj Tal in Himachal Pradesh
- Used HEC-RAS hydrodynamic modeling to visualize flood potential for chosen study lakes

MIT EAPS Glacier Dynamics & Remote Sensing Group

Cambridge, MA (Remote)

Advisor: Joanna Millstein; PI: Brent Minchew

May 2020-May 2021

- Performed an extensive literature review to find the best software tool to build ice shelf model
- Built a continuum mechanical Stokes model using open-source Python differential equation solver, FEniCS
- Tested multiple observation-based theories from literature for predicting rift trajectories in ice shelves & developed a new metric for predicting ice shelf stability based on stress and velocity of ice shelves

MIT Laboratory for Atomistic and Molecular Materials

Cambridge, MA

Advisor & PI: Markus Buehler

Jan 2019-June 2020

- Designed and built an Arduino scanning system for creating digital models of 3-dimensional spiderwebs
- Developed methods for breaking down post-consumer PLA plastic and extruding it for high-quality fused deposition modeling (3-D printing) of recycled plastic and biomass waste for enhanced mechanical properties

MIT EAPS Susan Solomon Lab

Cambridge, MA

Undergraduate Researcher

Sep-Dec 2018

- Obtained and analyzed satellite data on atmospheric ozone, pollutants, and aerosols using MATLAB

Publications

- Su, I., **Narayanan, N.**, et al. In-situ spider web construction and mechanics. *Proceedings of the National Academy of Sciences (PNAS)*, August 2021.
- Su, I., Jung, G.S., **Narayanan, N.**, Buehler, M. Perspectives on 3D printing of self-assembling materials and structures. *Current Opinion in Biomedical Engineering*, February 2020.
- Angles 2019 (MIT Writing Journal): "[Homeland](#)", "[Saving our Pollinators](#)"

Awards

Burchard Scholar

2020

- Chosen for yearly program bringing together distinguished members of MIT faculty and 35 undergraduates who have demonstrated excellence in the arts, humanities, and social sciences

Henry David Thoreau Scholarship

2018-2022

- One of eight Massachusetts students chosen for four-year scholarship for environmental leadership

Invited Talks & Panels

- Featured panelist, MIT South Asian Alumni Association's International Women's Day Celebration 2023
- Keynote speaker, 2022 Henry David Thoreau Society Annual Meeting
 - Chosen from the Henry David Thoreau scholarship class of 2022 to give a talk for incoming scholars, their families, and potential donors to the scholarship fund
- Student moderator, MIT "Intuitively Obvious" video series
 - Moderated filmed conversations with AAPI students as part of the 2022 "Intuitively Obvious" video series on the manifestations of race and privilege at MIT

Leadership

MIT South Asian Association of Students (SAAS) President

June 2021-June 2022

- Served as Community Engagement and Outreach Chair from 2020-2021 & was elected President in Spring 2021
- Implemented platform based on working towards closer sense of community, transparency, inclusivity, and democracy in SAAS
- Initiated, planned, and led major fundraising campaign for COVID relief in India and Nepal in Spring 2020
- Organized a series of online talks in Spring 2021 hosting experts on topics such as South Asian mental health, the South Asian diaspora in East Africa, and colorism in the South Asian community
- Founded yearly book club: chose South Asian-authored books and facilitated weekly discussions
- Led planning for MIT Garba-Raas 2021: delegated tasks, wrote proposals for grant funding, interfaced with administration on COVID policies and logistics, interfaced with DJ and caterers, and ideated and organized cultural clothing borrowing program for annual community event with over 200 students, staff, and community members in attendance

MIT Terrascope: Undergraduate Teaching Fellow (UTF)

2020-2022

- Mentored students, held office hours, and ran meetings for fall Solving Complex Problems class which focuses on a different sustainability or climate related issue each year
- Evaluated and provided feedback on student-produced website and presentation drafts prior to final presentation
- Collaborated with other UTFs to research & develop innovative methods for remote collaborative project work during COVID-19 pandemic

MIT Associate Advising Program

2019-2022

- Assisted faculty advisors with advising first-year students at MIT by providing advice on class registration and helping students find resources for academic performance and mental health
- Mentored 21 total first-year students both in-person and during the pandemic through weekly one-on-one meetings
- Led off-campus study breaks for first-year advisees to help them learn how to navigate Boston

MIT Cycling Recruitment Officer

Sept 2020-June 2021

- Managed social media presence, prioritizing highlighting BIPOC cyclists & outdoors advocates
- Collaborated with other officers on creating an anti-racist Code of Conduct and team environment
- Organized monthly cycling-related webinars and community building events during the COVID-19 pandemic

Gordon-MIT Engineering Leadership Program (GEL)

2020

- Learning engineering leadership theory and developing & honing leadership skills in an engineering context

Work Experience

Charles River Watershed Association

Cambridge, MA

Data Analysis Intern

June-August 2021

- Compiled and evaluated stormwater reporting and water quality data from Charles River watershed communities
- Translated results of survey into a public-facing report to encourage municipal compliance with the Massachusetts Small Municipal Separate Storm Sewer System (MS4) Permit
- Developed recommendations for long-term data tracking and analysis of phosphorus pollution in the watershed

MIT Angles Magazine

Cambridge, MA

Editorial Assistant

June 2020-August 2021

- Selected by Writing department faculty as a student editor for MIT online magazine highlighting student writing
- Coordinated communication between faculty editors and student writers, edited writer biographies, proofread & edited student writing pieces, and formatted magazine website

MIT-South Asia Oral History Project

Cambridge, MA (remote)

Student Intern, MIT History Department

January 2020, 2021

- Studied literature on the history of Indian students at MIT and its relationship with technical institutions in India during British occupation and India's independence movement

- Obtained and read through MIT student newspaper archives & graduation records and wrote articles about early South Asian MIT students as a part of a larger upcoming exhibit on South Asia and MIT
 - Conducted oral history interviews of trailblazing South Asian MIT alumni of varying ages and nationalities as part of a growing oral history archive
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