

Aditya Advani

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EDUCATION

The University of Chicago

Ph.D. Physics

Current

Haverford College

B.S. Physics (High Honors),
B.S. Pure Mathematics (Honors),
Concentration in Scientific Computing

May 2024

WORK EXPERIENCE

Daniels Lab (NCSU), Research Assistant, Raleigh, NC, USA

May 2024 – August 2024

- Continuing the project (NSF GLD-2244616) as a graduate student. My work involves transferring my system from the Brzinski Group to Daniels Lab and performing laser velocimetry to measure the Density of Modes of earth samples.
- Developed and documented new hardware, prepared new experiments and publications on the measurement of acoustic signals in granular materials.

Brzinski Group (Squishlab), Research Assistant, Haverford, PA, USA

May 2022 – May 2024

- Conducted research in collaboration with UCSD (Scripps Institute) and NCSU (NSF GLD-2244616). This research aims to forecast failure in granular systems (earthquakes and landslides) by quantifying changes in low frequency peaks in the Vibrational Density of Modes of a material.
- The Vibrational Density of Modes is extracted using a thermal technique by measuring acoustic emissions from excited granular matter that is compressed or sheared.
- Designed and constructed the system used to measure the Vibrational Density of Modes in the field using piezoelectric ceramics and measure 3D structure using tomography at BerkeleyLab (LBNL).

Haverford College, Laboratory Assistant, Haverford, PA, USA

August 2021 – May 2024

- TA and Lab Assistant in the Physics Department for lab courses at Haverford College.

JOEST GmbH, Intern, Duermen, Germany

April 2019 – August 2019

- Researched about the practical applications of Mechanical Vibration using industrial shakers with granular materials.
- Assembled an industrial water-cooling system and attached it to a JOEST spiral conveyor with a team of mechanical engineers.

Animal Factory Amplification, Intern, Mumbai, India

August 2019- October 2019

- Researched about electronic distortion and fuzz used in guitar amplifiers. This involved learning about I.C.s, diodes and transistors in relation to sound editing.
 - Assembled a Fuzz and Distortion-Overdrive pedal with custom graphics and controls for electric guitars.
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PRIZES AND HONORS

- B.S. Physics- High Honors (2024)
 - B.S. Mathematics- Honors (2024)
 - Recipient of the Boughn-Gollub-Patridge Research Prize (and Fund)
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PROJECTS AND SKILLS SUMMARY

- Python, Java, MATLAB, Arduino, Fusion360, EagleCAD (and other relevant milling software).
- My Thesis Titles:
 - The Acoustics of Earth Materials- Geohazard Forecasting using the Density of Modes (Experimental Soft Matter Physics, 2024)
 - The Alcuin Number Problem (Pure Mathematics- Graph Theory, 2024)