

Anant Hariharan

Providence, RI, USA
(607) 379-5103 — anant_hariharan@brown.edu

EDUCATION	Brown University , Providence, RI <i>Doctor of Philosophy</i> , Geophysics	Expected August 2023
	Brown University , Providence, RI <i>Master of Science</i> , Earth Sciences	May 2020
	Cornell University , Ithaca, NY <i>Summa Cum Laude</i> , Bachelor of Arts With Majors in Physics and Geological Sciences, and <i>Distinction in All Subjects</i>	May 2018
PUBLICATIONS	Hariharan, A. , C.A. Dalton, J.C. Babikoff, & G. Ekström. Controls on surface wave overtone interference. <i>Geophysical Journal International</i> , 228, 1665-1683, https://doi.org/10.1093/gji/ggab424 , 2021.	
	Nathan, E.M., A. Hariharan , D. Florez, & K.M. Fischer. Multi-Layer Seismic Anisotropy Beneath Greenland. <i>Geochemistry, Geophysics, Geosystems</i> , 22(5), e2020GC009512, https://doi.org/10.1029/2020GC009512 , 2021.	
	Hariharan, A. , C.A. Dalton, Z. Ma, & G. Ekström. Evidence of overtone interference in fundamental-mode Rayleigh wave phase and amplitude measurements. <i>Journal of Geophysical Research: Solid Earth</i> , 125(1), e2019JB018540, 2020.	
	Mookherjee, M., J. Tsuchiya, A. Hariharan . Crystal structure, equation of state, and elasticity of hydrous aluminosilicate phase, topaz-OH (Al ₂ SiO ₄ (OH) ₂) at high pressures. <i>Physics of the Earth and Planetary Interiors</i> , 251, 24-35, https://doi.org/10.1016/j.pepi.2015.11.006 , 2016.	
	Mookherjee, M., D. Mainprice, K. Maheshwari, O. Heinonen, D. Patel, A. Hariharan . Pressure induced elastic softening in framework aluminosilicate-albite (NaAlSi ₃ O ₈). <i>Scientific reports</i> , 6(1), 1-10, https://doi.org/10.1038/srep34815 , 2016.	
AWARDS	<ul style="list-style-type: none">• <i>NSF Graduate Research Fellowship</i> 2018 - 2023 National Science Foundation• <i>Hunter R. Rawlings III Cornell Presidential Research Scholar</i> 2016 - 2018 Cornell University• <i>Chester Buchanan Memorial Award</i> 2018 Department of Earth and Atmospheric Sciences, Cornell University• <i>Tanner Dean's Scholar of the College of Arts and Sciences</i> 2014 - 2018 Cornell University, College of Arts and Sciences• <i>Dean's List</i> 2014 - 2017 Cornell University• <i>Michael William Mitchell Memorial Fund Award</i> 2017 Department of Earth and Atmospheric Sciences, Cornell University• <i>Category Winner for Best Presentation</i> 2017 Spring Research Forum, Cornell Undergraduate Research Board.• <i>SEG Scholarship</i> 2017 Society of Exploration Geophysicists	

PROJECTS & EXPERIENCE

Research Experience Jan 2016 - May 2018
Cornell Earthquake Seismology Group, Ithaca, NY

- Processed body wave data recorded by seismometers deployed adjacent to the Main Ethiopian Rift to understand the impact of nearby rifting on crustal and upper mantle deformation.

Summer Internship Summer 2017
University of Maryland College Park, College Park, MD

- Developed a wavelet-based approach to quantify geographic variations in the spectra of heterogeneity present within global and regional tomographic models.

Project Team May 2015 - May 2017
Cornell University, Ithaca, NY

- Seismology leader for a team designing model buildings to resist ground motions. I led shake table and material testing, as well as used finite element analysis to predict structural responses to ground motion. I also delivered presentations to integrate seismological context for engineering design.

Research Experience May 2014 - May 2015
Cornell Mineral Physics Group, Ithaca, NY

- Used crystallographic methods to interpret *ab initio* simulations and study the behavior of hydrous mineral phases occurring at high temperatures and pressures.

SERVICE & LEADERSHIP

Reviewer
Mechanical Systems and Signal Processing 2021

Organizer
Remote Online Sessions for Emerging Seismologists 2021 - present

- Planned lectures and organized course materials for an international, asynchronous course attended by 300+ students. Provided technical support and computing tutorials, as well as contributed to writing a grant for future sessions.

Student Representative
American Geophysical Union Seismology Section 2020 - 2022

- Served on the executive committee for the Seismology Section. Helped curate and keep section website up-to-date and participated in section meetings and activities.

GeoClub Treasurer 2019 - 2020
Brown University, Providence, RI

- Managed finances for the Department of Earth, Environmental, and Planetary Sciences graduate students.

Geophysics Seminar Organizer 2020
Brown University, Providence, RI

- Organized a series of weekly geophysics lectures, including inviting scientists from other institutions.

Writer and Editor, "The Research Paper" Science Literary Magazine
Cornell University 2014 - 2018

- Wrote articles about Cornell University research for a broad audience. I was also selected to serve on the editorial board of this student-run publication for three years.

Co-President, Earth and Atmospheric Sciences Student Association
Cornell University 2015 - 2018

- Managed undergraduate student group finances and outreach activities, as well as organized multiple research symposia to showcase undergraduate research.

TEACHING & MENTORING

Graduate Student Mentor, Spring 2020, Summer 2020, Fall 2021
Brown University, Providence, RI

- Helped advise an undergraduate student through a research project aimed at improving the quality of Rayleigh wave phase velocity measurements. Provided guidance with method development and coding. Project resulted in a poster at the American Geophysical Union Fall Meeting 2021.

Teaching Assistant Fall 2021
Brown University, Providence, RI

- Solid Earth Geophysics, EEPS 1610
- Responsible for grading all problem sets and answering student questions in thrice-weekly remote and in-person office hours, as well as asynchronously via Slack. I led two lab sessions, one of which I developed from scratch on surface-wave seismic tomography.

Course Assistant Spring 2021
Brown University, Providence, RI

- Natural Disasters, EEPS 0160M
- Created three video lectures on seismology and volcanology. Held weekly office hours.

SKILLS

Programming/Software: Python, MATLAB, GMT, L^AT_EX, Shell Scripting.

Familiar with: Fortran, SAC, and Antelope.

Field: Familiar with broadband and nodal seismometer deployments and servicing, as well as general field techniques.

Languages: English (native), Spanish and Hindi (conversational).

Areas of Focus: Signal Processing, Inverse Theory, Data Mining, Structural Seismology

RELEVANT COURSEWORK

Geosciences: Earthquake Seismology, Advanced Seismology, Global Tectonics, Solid Earth Geophysics, Rheology of the Crust and Mantle, Physical Volcanology, Structural Geology, Advanced Structural Geology, Earthquake Record Reading, Interior of the Earth, Geodynamics, Seismology, Active Tectonics, Advanced Seismology, Data Analysis in the Geosciences, Introduction to Biogeochemistry

Quantitative: Continuum Physics of Solid Earth, Modeling in Natural Sciences, Computing using MATLAB, Multivariable Calculus for Engineers, Linear Algebra for Engineers, Electromagnetism, Oscillations Wave and Quantum Physics, Thermodynamics, Basics of Quantum Mechanics, Applications of Quantum Mechanics, Intermediate Electricity and Magnetism

SELECTED CONFERENCE PRESENTATIONS

Hariharan, A., C. A. Dalton, Minimizing Love wave overtone interference in phase velocity measurements via a targeted selection of earthquake sources. AGU Fall Meeting 2021.

Russell, J. B., C. A. Dalton, & **A. Hariharan**, Array-based observations of Rayleigh-Wave attenuation in the Pacific. AGU Fall Meeting 2021.

J. Grossman, **A. Hariharan**, & C. A. Dalton, A new metric for improving the quality of Rayleigh wave phase-velocity Measurements, AGU Fall Meeting 2021.

Nathan, E.M., **A. Hariharan**, & K. M. Fischer. Greenland's mantle transition zone and crustal structure revealed by receiver functions, AGU Fall Meeting 2021.

Hariharan, A., C.A. Dalton, J.C. Babikoff, & G. Ekström. Controls on surface wave overtone interference, AGU Fall Meeting 2020.

Hariharan, A., C.A. Dalton, Z. Ma, G. Ekström, & D. W. Forsyth. Overtone interference in fundamental-mode Rayleigh wave phase and amplitude, AGU Fall Meeting 2019.

Nathan, E.M., **A. Hariharan**, D. Florez, H.E. Krueger, I. Gama, J. Krogh, N. Zhao, & K.M. Fischer. Seismic anisotropy in the Greenland mantle from shear wave splitting, AGU Fall Meeting 2019.

Hariharan, A., V. Lekic, F. J. Simons, & P. Moulik (2019). An evolving multi-scale repository of heterogeneity from the reconciliation of community Earth models, AGU Fall Meeting 2019.

FIELDWORK

- *Active Source Experimentation, Rio Grande, New Mexico* 2017
Broadband seismometer servicing runs, and active-source profiling of the Socorro magma body
- *Nodal Seismometer Retrieval in Oklahoma* 2016
Retrieval of a massive rapid-response nodal deployment of seismometers to investigate aftershocks from the M5.8 Pawnee Quake.
- *Broadband Seismometer Deployment in Oklahoma* 2016
Deployed broadband seismometers in Oklahoma for an array designed to monitor induced seismicity.
- *Broadband Seismometer Servicing in Ithaca, New York* 2016
Serviced seismometers deployed in the Cornell Seismic Network to monitor instrument health and ensure continual recording of data, regardless of the number of snakes around the seismometers.
- *Field Mapping in the Andes, Argentina* 2015
Engaged in field mapping exercises in the Andes, including an independent mapping project. Worked in diverse geologic settings and recorded data for cross-sections, stereographic projections, and stratigraphic columns.