

Ryley Hill (he/him/his)

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EDUCATION

Scripps Institution of Oceanography, University of California San Diego & San Diego State University

San Diego, CA

PhD in Geophysics, GPA 3.88/4.00

August 2018 - Dec 2023

- Built regional 3D numerical, statistical, and ML/DL models to solve fluid-fault interactions and linear programming optimization for real-world injection well operations to reduce anthropogenic seismic hazard
- Novel inclusion of cooperative game theory principles (SHAP) to help decipher earthquake triggering mechanisms
- Built YOLOv2 (image detection) network to improve wildfire early warning systems
- Collaborated on multiple projects at once while delegating responsibilities among multiple co-authors
- Presented work at several international scientific meetings; 3 invited lectures
- Interviewed for novel findings by *NYT*, *LAT*, *WaPo*, *CBS*, and *NPR* amongst others

University of Nevada, Reno

Reno, NV

MSc in Geophysics, GPA 3.83/4.00

August 2016 - May 2018

- Developed a parsimonious algorithm to determine the fractional snow-covered area and grain size for hyperspectral images across the Sierra Nevada

University of Nevada, Reno

Reno, NV

BSc in Applied Math, Physics, and Geophysics, GPA 3.68/4.00

August 2010 - May 2015

- Westfall Scholar (highest GPA of all graduating Geological Sciences & Engineering students)

RESEARCH AND TECHNICAL EXPERIENCE

University of Nevada Seismological Lab

Reno, NV

Letter of Appointment

August 2015 - August 2016

- Supervised field deployment of Iris Passcal broadband seismometers and geophones in Dixie Valley, NV with several student workers

LEADERSHIP AND TEAMWORK EXPERIENCE

San Diego State University

San Diego, CA

Teaching Assistant

August 2018 - Present

- Selected by department as teaching assistant for variety of undergraduate/graduate level courses: hydrology, geology, natural hazards, and oceanography
- Designed and led weekly lab session, course material, and exams to group of ~30 students

Geophysics Curricular Group Student Representative

San Diego, CA

Lead Representative

August 2020- August 2021

Representative

August 2019 - May 2020

- Organized several social gatherings of curricular group members including field trips
- Scheduled important departmental training meetings to improve the academic success of 1st-3rd year PhD students
- Gathered and conveyed any student concerns to department
- Chosen as lead representative during the isolating year of the COVID-19 pandemic for development of creative online social gatherings that improved morale and community

University of Nevada, Reno

Reno, NV

Teaching Assistant

August 2016 - May 2018

- Designed, graded, and led weekly lab session to group of ~30 students in geology
- Led and planned week-long gravimeter and magnetometer field course in Yosemite Valley
- Lectured upper-division applied geophysics course when professor was absent

SKILLS AND INTERESTS

- **Programming:** Matlab, Python, R, C++, Machine/Deep Learning, Fortran, Mathematica, Maple, Unix/Linux, vi, High Performance Computing (HPC) - Slurm and PBS.
- **Modeling Software:** Abaqus, MODFLOW, GMTSAR, Agisoft Metashape, AutoCAD, ArcGIS.
- **Interests:** practice player for the San Diego Growlers professional ultimate frisbee team, backpacking, surfing, board games

PUBLICATIONS

- **Hill, R.G.,** Weingarten, M., Rockwell, T.K. et al. Major southern San Andreas earthquakes modulated by lake-filling events. *Nature* 618, 761–766 (2023). <https://doi.org/10.1038/s41586-023-06058-9>