

EDUCATION

- MSc Geophysics** (3.91/4.00) 2026
University of California, Davis Davis, CA
- **Thesis:** *Understanding Seismic Anisotropy Observations in the Context of 3D Slab-Induced Flow in the Cascadia Subduction Zone* (Advisor: Magali Billen)
 - **Relevant Coursework:** Methods of Teaching Geology, Regional Synthesis of Geophysical & Geological Data for Geodynamic Modelling, An Introduction to Subduction Geodynamics Modelling, Fracture & Flow of Rocks, Earthquake Geology.
- BA Computer Science** (3.75/4.00) 2023
McGill University Montréal, QC
- Minor in **Earth & Planetary Sciences**, Supplementary Minor Concentration in Computer Science
 - **Research Projects:** *Accessible Machine Learning For Geospatial Analysis; Using a U-Net to Identify Landslides* (Advisor: Jamie Kirkpatrick)
 - *Relevant Coursework:* Mineralogy, Petrology, Geology in the Field, Field School I, Earth Physics, Earth System Modelling, Structural Geology, Volcanology, Algorithms & Data Structures, Data Science, Linear Algebra I & II, Probability, Statistics, Applied Machine Learning, Probabilistic Programming, Machine Learning Applied to Climate Change.

EXPERIENCE

- Sept 2025–present **Graduate Student Researcher @ UC Davis DataLab** Davis, CA
- Working on virtual & augmented reality development in C++ for scientific analysis & visualization.
 - Rebuilding organization documentation to improve accessibility & reach.
 - Supervising & mentoring an undergraduate student interning at the DataLab.
- Sept 2024–Jun 2025 **Graduate Teaching Assistant @ UC Davis** Davis, CA
- Teaching assistant in the Dept. of Earth & Planetary Sciences.
 - Taught lab courses, field excursions, & discussion sections over three quarters.
- Jul 2023–Aug 2024 **Technology Analyst @ Morgan Stanley** Montréal, QC
- Worked collaboratively to provide agile metrics analysis for internal dev. teams globally, user support, & documentation.
 - Utilized DB2 SQL, MongoDB, & Python to process metrics & maintain project infrastructure.
- May–Aug 2022 **Data Science Intern @ Esri Canada** Remote
- Automated a workflow for updating national hydrography data using the Multi-Task Road Extractor deep learning model.
 - Designed new input image layers & geomorphological indicators that improved the baseline model accuracy by ~4%.

PUBLICATIONS & TALKS

PAPERS

Redick, N. R. (2023). A Review of Pumice Raft Formation Environments, Saturation, and Dispersal Mechanisms. *McGill Science Undergraduate Research Journal*, 18(1), B19–B25. <https://doi.org/10.26443/msurj.v18i1.187>

CONFERENCE ABSTRACTS

Redick, N., & Billen, M. I. (2025). Understanding Seismic Anisotropy Observations in the Context of 3D Slab-Induced Flow in the Cascadia Subduction Zone. AGU25. *Proceedings of the 2025 Fall Meeting of the American Geophysical Union (AGU25)*. <https://agu.confex.com/agu/agu25/meetingapp.cgi/Paper/1986081>

TALKS

Redick, N. R. Open Source xR in Earth and Planetary Sciences. Campus Alliance for Advanced Visualization Conference (CAAV). *University of Maryland, Baltimore County*. <https://thecaav.org> (2025).

Redick, N. R. Science at Sea: Summary of the August 2025 PACSAFE & EXTEND Research Cruise. Friday Lunch Talk. *University of California, Davis* (2025).

Redick, N. R. Intro to Machine Learning Tools & Applications for Geoscience. Friday Lunch Talk. *University of California, Davis* (2025).

Redick, N. R., Tarling, M. S., & Kirkpatrick, J. D. Code-Free Deep Learning for Geospatial Applications. AGU23. <https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1366363> (2024).

Redick, N. R. Building an Accessible Machine Learning Workflow for Geospatial Analysis. Open Research Symposium. *McGill Library, Montreal QC*. <https://escholarship.mcgill.ca/concern/presentations/2n49t738j> (2023).

BLOG POSTS

Redick, N. (2024, November 25). *Setting up VSCode and Python for MacOS*. N. Redick. <https://nredick.github.io/docs/setting-up-vsc-macos/>

FIELD EXPERIENCE

Sept 2025 3 days	Seismic Node Recovery/Redeploy <i>University of Oregon & USGS Cascades Volcano Observatory</i> Mt. Rainier & Mt. St. Helens, WA
	<ul style="list-style-type: none">– Assisted in the recovery of seismic nodes deployed in Aug 2025 along the Tahoma Creek drainage on Mt. Rainier.– Assisted in the deployment of infrasound, field cameras, & 87 seismic nodes in a helicopter-enabled mission on Mt. St. Helens.
Aug 2025 20 days	PACSAFE 2025 & EXTEND 2025 <i>NRCAN, University of British Columbia, University of Victoria, NFSI</i> Offshore, BC
	<ul style="list-style-type: none">– Participated as an Apply-to-Sail student aboard the CCGS John P. Tully to recover & deploy ocean bottom seismometers (OBS).– PACSAFE OBS were recovered along the Explorer microplate off of Haida Gwaii & redeployed to the south of the 2024 field.– EXTEND OBS were deployed along at Endeavour to complement existing cabled arrays.
Jul 2025 2 days	Temporary Seismic Array Deployment <i>University of Oregon & USGS Cascades Volcano Observatory</i> Mt. Rainier National Park, WA
	<ul style="list-style-type: none">– Assisted a deployment of 53 seismic nodes in temporary arrays along the Tahoma Creek drainage to support studies of debris flows.
May 2025 1 day	Field Assistant <i>UC Davis</i> Jot Dean Cave & Pluto Cave, CA
	<ul style="list-style-type: none">– Assisted in the collection of biofilm samples from lava tubes.
Oct 2022 7 days	Graduate Volcanology Seminar <i>McGill University</i> Long Valley Caldera, CA
	<ul style="list-style-type: none">– Participated in a field seminar to study the volcanological features & geologic history of the caldera & associated features.
May 2021 16 days	Field School I <i>McGill University</i> Death Valley, CA
	<ul style="list-style-type: none">– Produced maps of geologic units & structures in both Rainbow Basin & Dublin Gulch, CA.– Gained experience in structural field mapping, using a Brunton compass, & navigating with topographic maps.

SERVICE & LEADERSHIP

Oct 2024–present	DataLab Affiliate @ UC Davis DataLab <ul style="list-style-type: none">– Participate & assist in data science & computational pedagogy workshops.
Jan 2025–Jun 2025	Student Mentor @ Association of Women Geoscientists (AWG) at UC Davis <ul style="list-style-type: none">– Assist a student in learning new skills, building job applications & CVs; discussing the science field & graduate school.
Mar 2025, Nov 2025	Pathways to Graduate School @ AWG at UC Davis <ul style="list-style-type: none">– Presenting member at panel discussions designed to provide undergraduates with valuable insights into the graduate school application process & life as a graduate student.
Feb 2025	Field Trip Activity Leader @ UC Davis <ul style="list-style-type: none">– Engaged 6th graders in discussions & hands-on experiences about characteristics of the 3 major rock types in the UC Davis rock garden.

Sept 2020–Apr 2023 **Vice President of Communications** @ Montereian Society
 – Managed communications for the undergraduate student council of Earth & Planetary Sciences at McGill University.

TEACHING EXPERIENCE

Apr–Jun 2025	GEL 1: The Earth (TA)	<i>University of California, Davis</i>
	– Guest lectured on the formation of the Earth & space.	
	– Led 1 hr/week of discussion on introductory earth science concepts.	
Jan–Mar 2025	GEL 101L: Structural Geology Lab (TA)	<i>University of California, Davis</i>
	– Led 6 hours a week of lab on upper-division undergraduate structural geology concepts & assisted in field techniques/mapping excursions.	
Dec 2024	Introduction to Computational Pedagogy	<i>University of California, Davis DataLab</i>
	– Two-day instructor training on evidence-based teaching, inclusive pedagogy, & instructional design for computational skills.	
Sept–Dec 2024	GEL 50L: Physical Geology Lab (TA)	<i>University of California, Davis</i>
	– Led 6 hours a week of lab on introductory geologic concepts & field techniques; developed course material & updated lab lecture slides.	
	– Sample topics included mineral & rock identification, stratigraphy, tectonics, & glacial/surface processes.	

SKILLS

Programming Languages	Python, Julia, C/C++, shell scripting, R, Java, MATLAB, DB2/SQL/MySQL, HTML/CSS, OCaml, (MIPS) Assembly
Field Techniques	Structural mapping, Brunton compass, field navigation & safety
Instrumentation	Temporary seismic nodes, broadband ocean bottom seismometers, field cameras, infrasound, rock saw
Software & Tools	Git, Linux/Unix, \LaTeX , Jupyter, HPC, Slurm, QGIS/ArcGIS, ASPECT, Paraview, RESTful APIs, MongoDB, Jira, Jenkins, Liquibase
Languages	<i>French</i> : writing (intermediate), reading (intermediate), speaking (beginner)

SCHOLARSHIPS & AWARDS

<i>Early Career Program</i> , UNOLS MSROC (\$500)	Dec 2025
– Travel & lodging funding to attend the 2-day early career program workshop ahead of AGU25.	
<i>Best Design & Most Fun; Most Creative Game Dev Hack</i> , McHacks9	Jan 2022
<i>Best AI Hack for Art</i> , MAIS Hacks 2021	Oct 2021
<i>Geotop 2021 Scholarship Competition</i> , Geotop (\$1500)	Jun 2021
<i>Best Overall Hack</i> , MAIS Hacks 2020 (\$200)	Oct 2020
<i>Alma Mater Scholarship</i> , McGill University (\$3000)	Sept 2019
<i>Stat Staff Professionals Computer Science Scholarship</i> , Saratoga Springs High School (\$1000)	2019

CERTIFICATIONS

<i>A-200 Mishap Review</i> , Interagency Aviation Training (USGS)	Aug 2025
<i>A-110 Aviation Transportation of HazMat</i> , Interagency Aviation Training (USGS)	Aug 2025
<i>A-100 Basic Aviation Safety</i> , Interagency Aviation Training (USGS)	Aug 2025
<i>Workplace Hazardous Materials Information System (WHMIS)</i> , Aix Safety (Canada)	Jun 2025
<i>Wilderness First Aid</i> , Sierra Rescue (Expires Nov 2027)	Nov 2024
<i>Epinephrine Auto-Injector Administration</i> , Sierra Rescue (Expires Nov 2026)	Nov 2024
<i>Adult Child Infant CPR/AED & First Aid</i> , Sierra Rescue (Expires Nov 2026)	Nov 2024