

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 and Flow of Rocks, Earthquake Geology
- BA Computer Science** (3.75/4.00) 2023
McGill University Montreal, QC
- Minor in **Earth & Planetary Sciences**, Supplementary Minor Conc. in Computer Science (Data Science, Machine Learning)
 - **Research Projects:** *Accessible Machine Learning For Geospatial Analysis; Using a U-Net to Identify Landslides* (Advisor: Jamie Kirkpatrick)
 - **Relevant Coursework:** Earth Physics, Structural Geology, Volcanology, Data Science, Probability, Statistics, Applied Machine Learning, Probabilistic Programming.

WORK 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.
- 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 in the Fall, Winter & Spring quarters
- Jul 2023–Aug 2024 **Technology Analyst @ Morgan Stanley** Montreal, 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%.

SKILLS

Programming Languages	Python, Julia, C/C++, Java, DB2/SQL/MySQL, R, Bash, MATLAB, 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

PAPERS & TALKS⁺

1. ⁺ **Redick**, N. R. *Intro to Machine Learning Tools & Applications for Geoscience*. Friday Lunch Talk. University of California, Davis. <https://github.com/nredick/intro-to-ml-GVP> (2025).
2. ⁺ **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).
3. **Redick**, N. R. A Review of Pumice Raft Formation Environments, Saturation, and Dispersal Mechanisms. *McGill Science Undergraduate Research Journal* **18**, B19–B25. ISSN: 1718-0783. <https://msurjonline.mcgill.ca/article/view/187> (2023).
4. ⁺ **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).

FIELD EXPERIENCE

Oct. 2025 TBD	Seismic Node and Infrasound Recoveries <i>University of Oregon & USGS Cascades Volcano Observatory</i>	Mt. St. Helens, WA
	<ul style="list-style-type: none">– Will assist in the recovery of infrasound, field cameras, and seismic nodes in a helicopter-enabled mission on Mt. St. Helens.	
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, and 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 the Endeavour Ridge 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, CA & Dublin Gulch, CA.– Gained experience in structural field mapping, using a Brunton compass, & navigating with topographic maps.	

TEACHING EXPERIENCE

Apr–Jun 2025	GEL 1: The Earth (TA)	UC Davis
	<ul style="list-style-type: none">– 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)	UC Davis
	<ul style="list-style-type: none">– Led 6 hours a week of lab on upper-division undergraduate structural geology concepts & assisted in field techniques/mapping excursions.	
December 2024	Introduction to Computational Pedagogy Workshop	UC Davis Datalab
	<ul style="list-style-type: none">– Two-day instructor training on evidence-based teaching, inclusive pedagogy, & instructional design for computational skills.	
Sept–Dec 2024	GEL 50L: Physical Geology Lab (TA)	UC Davis
	<ul style="list-style-type: none">– Led 6 hours a week of lab on introductory geologic concepts & field techniques; developed course material & updated lab lecture slides.– Sample topics include mineral and rock identification, stratigraphy, tectonics, & glacial/surface processes.	

SERVICE & LEADERSHIP

Feb 2025	Field Trip Activity Leader @ UC Davis
	<ul style="list-style-type: none">– Facilitated an interactive learning activity in the rock garden for visiting 6th-grade students.– Engaged students in discussions & hands-on experiences about characteristics of the 3 major rock types.
Jan 2025–Jun 2025	Student Mentor @ Association of Women Geoscientists 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.
Oct 2024–present	Datalab Affiliate @ UC Davis Datalab
	<ul style="list-style-type: none">– Participate & assist in data science & computational pedagogy workshops.
Sept 2020–Apr 2023	Vice President of Communications @ Montereian Society
	<ul style="list-style-type: none">– Managed communications for the undergraduate student council of Earth & Planetary Sciences at McGill University.

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

SCHOLARSHIPS & AWARDS

<i>Bogo Hack</i> , MAIS Hacks 2022	Oct 2022
<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	Oct 2020
<i>Alma Mater Scholarship</i> , McGill University (\$3000)	Sept 2019