

EDUCATION

- 2024–2026 **MSc Geophysics** (3.91/4.00) University of California, Davis
Thesis: *Understanding Seismic Anisotropy Observations in the Context of 3D Slab-Induced Flow in the Cascadia Subduction Zone* (Advisor: Magali Billen)
- 2019–2023 **BA Computer Science** (3.75/4.00) McGill University
- Minor in **Earth & Planetary Sciences**, Supplementary Minor Conc. in Computer Science (Data Science, Machine Learning)
 - Research: *Accessible Machine Learning For Geospatial Analysis; Using a U-Net to Identify Landslides* (Advisor: Jamie Kirkpatrick)

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.
- 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%.

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. *Origin of Earth & Early Earth*. GEL 1. Guest Lecture, University of California, Davis (2025).
3. ⁺ **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).
4. **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).
5. ⁺ **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).

SKILLS

- Programming Languages** Python, Julia, C/C++, Java, DB2/SQL/MySQL, R, Bash, MATLAB, HTML/CSS, OCaml, (MIPS) Assembly
- Software & Tools** Git, Linux/Unix, \LaTeX , Jupyter, HPC, Slurm, QGIS/ArcGIS, ASPECT, Paraview, RESTful APIs, MongoDB, Jira, Jenkins, Liquibase

SERVICE & LEADERSHIP

- Feb 2025 **Field Trip Activity Leader** @ UC Davis
- 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
- 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
- Participate & assist in data science & computational pedagogy workshops.
- 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)** UC Davis
- 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
- Led 6 hours a week of lab on upper-division undergraduate structural geology concepts & field techniques/mapping.
- December 2024 **Intro to Computational Pedagogy Workshop** UC Davis Datalab
- 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
- Led 6 hours a week of lab on intro geologic concepts & field techniques.

FIELD EXPERIENCE

- End of Sept 2025 **Seismic Node Recovery/Redeploy** Mt. Rainier & Mt. St. Helens, WA
TBD UC Davis, the University of Oregon, & Cascade Volcano Observatory
- Will assist in the recovery of the seismic nodes deployed in Aug 2025 in temporary arrays along the Tahoma Creek drainage.
 - Will take a helicopter to deploy nodes on Mt. St. Helens (awaiting USGS confirmation for availability).
- Aug 2025 **PACSAFE 2025 & EXTEND 2025** Mt. Rainier National Park, WA
20 days NRCAN, University of British Columbia, University of Victoria, NFSI
- 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 **Temporary Seismic Array Deployment** Mt. Rainier National Park, WA
2 days UC Davis, the University of Oregon, & Cascade Volcano Observatory
- 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> – Assisted in the collection of biofilm samples from lava tubes.	Jot Dean Cave & Pluto Cave, CA
Oct 2022 7 days	Graduate Volcanology Seminar <i>McGill University</i> – Participated in a field seminar to study the volcanological features & geologic history of the caldera & associated features.	Long Valley Caldera, CA
May 2021 16 days	Field School I <i>McGill University</i> – 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.	Death Valley, CA

CERTIFICATIONS

<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

AWARDS & HONORS

<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