

NATHALIE REDICK

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EDUCATION

University of California, Davis |

Davis, CA

3.89/4.00

Thesis: *Understanding Seismic Anisotropy Observations in the Context of 3D Slab-Induced Flow in the Cascadia Subduction Zone* (Advisor: Magali Billen)

McGill University | BA Computer Science

Sept 2019–Aug 2023

Montreal, QC

3.75/4.00

- Minor in Earth & Planetary Sciences, Supplementary Minor Concentration in Computer Science (Machine Learning)
- Research: *Accessible Machine Learning For Geospatial Analysis; Using a U-Net to Identify Landslides*

WORK EXPERIENCE

Graduate Student Researcher @ UC Davis Datalab

Davis, CA | Jul 2025–present

- Working on virtual and augmented reality development in C++ for scientific analysis and visualization.
- Rebuilding organization documentation to improve accessibility and reach.

Technology Analyst @ Morgan Stanley

Montreal, QC | Jul 2023–Aug 2024

- 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.

Data Science Intern @ Esri Canada

Remote | May–Aug 2022

- 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 & PRESENTATIONS

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

Redick, N. R. (2023a, April 4). Building an Accessible Machine Learning Workflow for Geospatial Analysis. <https://escholarship.mcgill.ca/concern/presentations/2n49t738j?locale=en>

Redick, N. R. (2023b). 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>

SERVICE & LEADERSHIP

Field Trip Activity Leader @ UC Davis

Davis, CA | Feb 2025

- Facilitated an interactive learning activity in the rock garden for visiting 6th-grade students.
- Engaged students in discussions and hands-on experiences about characteristics of the 3 major rock types.

AWG Student Mentor @ Association of Women Geoscientists (AWG) at UC Davis

Davis, CA | Jan 2025–J

- Assist a student in learning new skills, building job applications & resumes; discussing the science field & graduate school.

Datalab Affiliate @ UC Davis Datalab*Davis, CA | Oct 2024–present*

- Participate & assist in workshops related to data science & computational pedagogy.

Vice President of Communications @ The Montereian Society*Montreal, QC | Sept 2020–Apr 2023*

- Managed communications for the undergraduate student council for Earth & Planetary Sciences at McGill University.

TEACHING EXPERIENCE

GEL 1: The Earth (TA), UC Davis*Apr–Jun 2025*

- Guest lectured on the formation of the Earth and space.
- Led 1 hr/week of discussion on introductory earth science concepts.

GEL 101L: Structural Geology Lab (TA), UC Davis*Jan–Mar 2025*

- Led 6 hours a week of lab on upper-division undergraduate structural geology concepts & field techniques/mapping.

Instructor Training: Introduction to Computational Pedagogy @ UC Davis Datalab*Davis, CA | Decer*

- Two-day workshop on evidence-based teaching, inclusive pedagogy, and instructional design for computational skills.

GEL 50L: Physical Geology Lab (TA), UC Davis*Sept–Dec 2024*

- Led 6 hours a week of lab on introductory geologic concepts & field techniques.

FIELD EXPERIENCE

Temporary Seismic Array Deployment @ Mt. Rainier National Park, WA*UC Davis | Jul 2025*

- Assisted a deployment of 53 seismic nodes in temporary arrays along the Tahoma Creek drainage to support studies of debris flows.
- Joint effort organized by UC Davis, the University of Oregon, and the Cascade Volcano Observatory.

Field Assistant @ Jot Dean Cave & Pluto Cave, CA*UC Davis | May 2025*

- Assisted in the collection of biofilm samples from lava tubes.

Graduate Volcanology Seminar @ Long Valley Caldera, CA*McGill University | Oct 2022*

- Participated in a 1-week field seminar to study the volcanological features & history of the Long Valley caldera in California.

Field School I @ Death Valley, CA*McGill University | May 2021*

- Produced maps of geologic units & structures in both Rainbow Basin, CA & Dublin Gulch, CA over 2.5 weeks.
- Gained experience with field mapping, using a Brunton compass, & topographic maps.

SKILLS & CERTIFICATIONS

Programming Languages: Python, Julia, C/C++, Java, DB2/SQL/MySQL, R, Bash, MATLAB, HTML/CSS, OCaml, (MIPS) Assembly

Tools: Git, Linux/Unix, \LaTeX , Jupyter, HPC, Slurm, RESTful APIs, MongoDB, Jira, Jenkins, Liquibase, QGIS/ArcGIS, ASPECT, Paraview