

NATHALIE REDICK

📍 Davis, CA | 📞 +1 (518) 410-4084 | ✉️ nrredick@ucdavis.edu | 🌐 nredick | 📧 nredick | 📄 0009-0005-5028-5299

EDUCATION

University of California, Davis , Davis, CA MSc Geophysics	4.00/4.00 September 2024 – June 2026
McGill University , Montreal, QC BA Computer Science	3.75/4.00 September 2019 – August 2023
– Minor in Earth & Planetary Sciences, Supplementary Minor Concentration in Computer Science (Machine Learning)	

RESEARCH

Machine Learning For Geospatial Analysis	September 2022 – July 2024
McGill University 🔗 – Designed a guided machine learning workflow for geospatial analysis.	Montreal, QC
Using U-Net to Identify Landslides	May 2021 – August 2022
McGill University 🔗 – Implemented an image segmentation ML model to identify landslides using geophysical & morphological indicators.	Montreal, QC
Undergraduate Research Assistant	January – August 2021
Earthquake Processes Research Group, McGill University – Individually designed & built a website using HTML/CSS & JS to communicate seismological data of Québec to promote public awareness about local earthquake hazards.	Montreal, QC

WORK EXPERIENCE

Technology Analyst	July 2023 – August 2024
Morgan Stanley – 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.	Montreal, QC
Data Science Intern	May – August 2022
Esri Canada – 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%.	Remote
Software Engineering Intern	June – August 2019
Blue Spiral Interactive/Albany IT Group – Improved in-house marketing analysis software by working with a team to build a RESTful API for visualising data. – Self-taught Python, Git, & QGIS during the internship. Used parallel computing to reduce execution time by 97% .	Saratoga Springs, NY
Software Development Intern	February – June 2019
Garnet River, LLC – Evaluated the efficacy & usability of computer vision products from Microsoft, Google, & AWS.	Saratoga Springs, NY

FIELD WORK

Graduate Volcanology Seminar @ McGill University	Long Valley Caldera, CA October 2022
– Participated in a 1-week field seminar to study the volcanological features & history of the Long Valley caldera in California.	
Field School I @ McGill University	Death Valley, CA 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.	

TEACHING EXPERIENCE

GEL 101L: Structural Geology Lab , University of California, Davis	January – March 2025
GEL 50L: Physical Geology Lab , University of California, Davis	September – December 2024

AWARDS

Bogo Hack, MAIS Hacks 2022	2022
Best Design & Most Fun; Most Creative Game Dev Hack, McHacks9	2022
Best AI Hack for Art, MAIS Hacks 2021	2021
Geotop 2021 Scholarship Competition, Geotop (\$1500)	2021
Best Overall Hack, MAIS Hacks 2020	2020
Alma Mater Scholarship, McGill University (\$3000)	2019
Stat Staff Professionals Computer Science Scholarship, Saratoga Springs High School (\$1000)	2019

CERTIFICATIONS

Wilderness First Aid, Sierra Rescue (Expires November 2027)	November 2024
Epinephrine Auto-Injector Administration, Sierra Rescue (Expires November 2026)	November 2024
Adult Child Infant CPR/AED & First Aid, Sierra Rescue (Expires November 2026)	November 2024

SKILLS

Programming Languages: Python, Julia, C++, C, Java, DB2/SQL/MySQL, R, Bash, MATLAB, HTML/CSS, OCaml, MIPS Assembly
Tools: Git, Linux/Unix, LaTeX, Jupyter, QGIS/ArcGIS, AWS EC2, VS Code, RESTful APIs, MongoDB, Jira, Jenkins, Liquibase

EXTRA-CURRICULARS

AWG Student Mentor

January 2024–Present

Association of Women Geoscientists (AWG) at UC Davis

Davis, CA

- Assist a student in learning new skills, building job applications & resumes; discussing the science field & graduate school.
- Guide the student in developing an exploratory research project in the geosciences.

Datalab Affiliate

October 2024–Present

UC Davis Datalab

Davis, CA

- Participate & assist in workshops related to data science & computational pedagogy.
- Help maintain the affiliated KeckCAVE Virtual Reality research lab in the Earth & Planetary Sciences department.

Vice President of Communications

September 2020 – April 2023

The Montereian Society

Montreal, QC

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

PROFESSIONAL DEVELOPMENT

Instructor Training: Introduction to Computational Pedagogy

December 2024


UC Davis Datalab

Davis, CA

- Two-day workshop on evidence-based teaching, inclusive pedagogy, and instructional design for computational skills.
- Strategies for teaching students from non-computational backgrounds, designing inclusive learning environments, and adapting to in-person/virtual/hybrid formats.

SCIWS12 Tutorial on Machine Learning & Deep Learning

December 2020


American Geoscience Union 

Virtual

- Attended a full-day technical workshop on machine learning & deep learning for the environmental & geosciences.

Accelerated Introduction to ML

January – April 2020

McGill Artificial Intelligence Society 

Montreal, QC

- Selected through a technical interview to participate in a **10-week** accelerated course of ML.

PUBLICATIONS & PRESENTATIONS

Redick, N. R., Tarling, M. S., & Kirkpatrick, J. D. (2024). Code-Free Deep Learning for Geospatial Applications. Retrieved October 6, 2024, from <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>