

# NATHALIE REDICK

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## EDUCATION

**University of California, Davis**, *Davis, CA* | MSc Geophysics 4.00/4.00 | September 2024 – June 2026

**McGill University** | BA Computer Science September 2019 – August 2023  
*Montreal, QC* 3.75/4.00

– Minor in Earth & Planetary Sciences, Supplementary Minor Concentration in Computer Science (Machine Learning)

## EXPERIENCE

**Technology Analyst** @ Morgan Stanley *Montreal, QC* | July 2023 – August 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 – August 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%.

## RESEARCH

**Machine Learning For Geospatial Analysis** @ McGill University [🔗](#) *Montreal, QC* | September 2022 – July 2024

– Designed a guided machine learning workflow for geospatial analysis.

**Using U-Net to Identify Landslides** @ McGill University [🔗](#) *Montreal, QC* | May 2021 – August 2022

– Implemented an image segmentation ML model to identify landslides using geophysical & morphological indicators.

## FIELD WORK

**Graduate Volcanology Seminar** @ McGill University *Montreal, QC* | 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 (2.5 weeks)** @ McGill University *Montreal, QC* | May – May 2021

– Produced maps of geologic units & structures in both Rainbow Basin, CA & Dublin Gulch, CA.

– Gained experience with field mapping, using a Brunton compass, & topographic maps.

## AWARDS

**Geotop 2021 Scholarship Competition**, Geotop (\$1500) 2021

– Selected based on my research proposal to *Use ML to Identify Landslides* & academic performance.

**Alma Mater Scholarship**, McGill University (\$3000) 2019

## EXTRA-CURRICULARS

**AWG Student Mentor** @ Association of Women Geoscientists (AWG) at UC Davis *Davis, CA* | January 2024–Present

– 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** @ UC Davis Datalab *Davis, CA* | October 2024–Present

– 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** @ The Montereian Society *Montreal, QC* | September 2020 – April 2023

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

## PROFESSIONAL DEVELOPMENT

**Instructor Training: Introduction to Computational Pedagogy** @ UC Davis Datalab *Davis, CA* | December 2024

– 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** @ American Geoscience Union [🔗](#) *Virtual* | December 2020

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

**Accelerated Introduction to ML** @ McGill Artificial Intelligence Society [🔗](#) *Montreal, QC* | January – April 2020

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

## 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

## PUBLICATIONS & PRESENTATIONS

- Redick, N. R., Tarling, M. S. & Kirkpatrick, J. D. *Code-Free Deep Learning for Geospatial Applications* in. AGU23 (AGU, Jan. 23, 2024). <https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1366363> (2024).
- 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> (2024) (1 Mar. 20, 2023).
- Redick, N. R. *Building an Accessible Machine Learning Workflow for Geospatial Analysis* Open Research Symposium McGill Library, Montreal QC. Apr. 4, 2023. <https://escholarship.mcgill.ca/concern/presentations/2n49t738j?locale=en>.