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, *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)

Work 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 Experience

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.

Service & Leadership

Field Trip Activity Leader @ UC Davis — *Davis, CA* | February 2025

- Facilitated an interactive learning activity in the rock garden for visiting 6th-grade students.
- Engaged students in educational 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* | January 2025–Present

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

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

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

Vice President of Communications @ The Monteregian Society — *Montreal, QC* | September 2020 – April 2023

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

Teaching Experience

GEL 1: The Earth (TA), UC Davis — April – June 2025

- Led 1 hr/week of discussion on introductory earth science concepts.

GEL 101L: Structural Geology Lab (TA), UC Davis — January – March 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* | December 2024

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

GEL 50L: Physical Geology Lab (TA), UC Davis — September – December 2024

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

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, AWS EC2, RESTful APIs, MongoDB, Jira, Jenkins, Liquibase
Softwares: QGIS/ArcGIS, ASPECT, Paraview

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

Awards

Bogo Hack, MAIS Hacks 2022 — 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

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