Nathalie Redick

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Education

McGill University (3.75 / 4.00) *Montréal, QC* | Sep. 2019 – May 2023
- B.A. in **Computer Science**, Minor in **Earth & Planetary Sciences** & Supp. Minor Conc. in **Computer Science**.

Skills

Programming Languages: Python, C++, C, Java, R, Bash, Julia, MATLAB, HTML/CSS, OCaml, MIPS Assembly.
Tools: Git, Linux/Unix, LaTeX, Jupyter, AWS EC2, VS Code, Numpy, Pandas, Tensorflow, PyTorch, & RESTful APIs.

Experience

Technology Analyst @ *Morgan Stanley* *Montreal, QC* | Aug 2023 – Present
- Currently enrolled in the Technology Analyst training program (TAP).

Data Science Intern @ *Esri* *Remote* | May 2022 – Aug. 2022
- Implemented an automated workflow for updating national hydrography datasets using the Multi-Task Road Extractor **deep learning** model.
- Improved the baseline model by $\sim 4\%$ accuracy to **96.3% accuracy & 0.85 MIOU** by designing new input image layers & geomorphological indicators.

Software Engineer Intern @ *Blue Spiral Interactive/Albany IT Group* *Saratoga Springs, NY* | Jun. 2019 – Aug. 2019
- Strengthened in-house marketing analysis software by working with a team to build a **RESTful API** for accessing & visualising marketing data.
- **Self-taught** Python, Git, & QGIS over the course of the internship. I used parallel computing techniques to **reduce execution time by 97%.**

Research

Machine Learning For Geospatial Analysis | *McGill University* Sep. 2022 – Present
- Creating a guided machine learning workflow for geospatial analysis.
- Our objective is to create a tool that can be used by anyone, regardless of their technical background.

Using U-Net to Identify Landslides | *McGill University* May 2021 – Present
- Implementing an image segmentation ML model to identify landslides using geophysical indicators.
- Current interation of the model boasts **95.3% accuracy & a loss of 0.19.**

Awards

- Awarded **Best AI Hack for Art** against 111 participants at MAIS Hacks 2021 for MAISpeare, a LSTM-driven web app (*Python, HTML/CSS*) that generates a poem from any image.
- Won **Best Overall Hack** at MAIS Hacks 2020 by leading a team against 115 participants to create a XGBoost-driven web app (*Python, HTML/CSS*) that predicts MBTI Personality Type based on Twitter data.

Geotop 2021 Scholarship Competition *($1500)* *Geotop* | 2021
- Selected based on my research proposal to *Use ML to Indentify Landslides* & my academic performance.

Alma Mater Scholarship *($3000)* *McGill University* | 2019
- Entrance bursary to McGill University for academic excellence in high school.

Extra-curriculars

Vice President Communications | *The Monteregian Society at McGill University* Sep. 2020 – Apr. 2023
- Managed communications for the undergraduate student council for Earth & Planetary Sciences.
- Designed & built the council's website to host student resources, events, & other information.

Member | *Machine Learning for Geoscience Reading Group at McGill University* Jan. 2021 – May 2021
- Participated in an informal reading group with faculty and researchers to examine current papers in ML applications in the geosciences.

Professional Development

SCIWS12 Tutorial on Machine Learning & Deep Learning | *American Geoscience Union* Dec. 2020
- Attended a technical workshop on machine learning & deep learning for the environmental & geosciences.

MAIS 202: Accelerated Introduction to ML | *McGill Artificial Intelligence Society* Jan. 2020 – Apr. 2020
- Selected through a technical interview to participate in a 12-week accelerated course of ML.
- **Webscraped data** to train a **CNN** to classify geologic sample images into 4 classes; deployed as a webapp.

Publications

1. Redick, N. R. (2023). A Review of Pumice Raft Formation Environments, Saturation, and Dispersal Mechanisms. McGill Science Undergraduate Research Journal, 18(1), Article 1. doi.org/10.26443/msurj.v18i1.187

Presentations

1. Redick, N. R. (2023, April 11). Building an Accessible Machine Learning Workflow for Geospatial Analysis. Open Research Symposium, McGill Library, Montreal QC.