

# Antoine Bachand

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## EDUCATION

### Iceland School of Energy

May 2021. – Apr. 2023

*MSc Sustainable Energy Engineering*

Reykjavik, Iceland

- **Thesis:** Focused on the modelling of cyclic hydrogen storage with multiphase flow and heat transfer [GitHub](#).
- **Partners:** Hydro-Québec and National institute of scientific research.
- **Coursework:** Machine Learning, Deep Learning, Data Mining, Optimization Methods, Wind Power, Finance.
- **Research Grants:** NSERC **\$17 500 CAD**, Desjardins **\$5 000 CAD**, (Co-Applicant) FRQNT Impulsion **\$75 000 CAD**.

### Université Laval

Sep. 2017 – Apr. 2021

*Bachelor in Geological Engineering (GPA: 3.8/4.3)*

Québec, QC

- **Award:** Over **\$14 000 CAD** in scholarship: NSERC, FRQNT, John Steers, AMQ, Foncer TEDGIER, CIM.

## EXPERIENCE

### National Institute of Scientific Research

May 2020 – May 2021

*Research intern*

Québec, QC

- Developed analytical ([GuitHub](#)) and numerical models to assess the potential of compressed air energy storage;
- Wrote a technical report and a **conference paper** that was the subject of a **radio interview** with [Radio-Canada](#);
- Partnered with Nergica to expand their outreach in the energy storage field.

### Osisko Metals

May 2019 – Sep. 2019

*Geological Engineering Intern*

Québec, QC

- Conducted data compilation, conductive anomalies exploration and rock sampling.

### Excursions Jacques-Cartier

May 2019 – Aug. 2021

*White water rafting expedition leader*

Stoneham, QC

- Responsible for the safety of **10 to 70 people** in **class 4 rapids** and led a team of **7 guides**.

## PROJECTS

### Backpropagation

- Implemented the algorithm that is the backbone of a neural network using only linear algebra and other mathematical tools available in numpy to get an overview of how the algorithm works [GitHub](#).

### Neural network for stock prediction

- Developed a neural network model with PyTorch that finished **first out of 10 groups** in terms of accuracy in predicting stock trends [Google Colab](#).

## SKILLS

**Languages :** Python, Matlab

**Tools :** Google Colab, COMSOL Multiphysics, GitHub, PyTorch, LaTeX.

## PUBLICATION

**Conference article:** Bachand, A., Raymond, J., 2021. Assessment of compressed air energy storage (CAES) potential in boreholes using an iterative method to estimate air leakage. Presented at the GeoNiagara Conference, Niagara. [DOI](#)