

# KALEB HUNEAU

BASc in Mathematics and Computer Engineering at Queen's University

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in Kaleb Huneau

KalebHuneau.com

## EXPERIENCE

### Fullstack Developer

Scotiabank

📅 June 2024 - Present

- Designed, and implemented the front-end of a Natural Language to SQL tool using React
- Front-end + backend implementation of a user-based feedback loop within a Retrieval-Augmented Generation (RAG) system
- Automated data collection and predictive model for file arrival times from a 3rd party vendor
- Designed and implemented part of data pipeline on the Google Cloud Platform using DBT, and Python

### FastLane Intern

Vector Institute for AI

📅 May 2023 - Sept 2023

- Developed a company screening tool using Google Sheets, streamlining the evaluation of company suitability for various programs and significantly reducing manual effort
- Reviewed and analyzed internal workflows, presenting actionable recommendations to improve process efficiency and operational effectiveness
- Researched and identified mid-market Canadian companies with AI adoption potential, expanding the portfolio of prospective clients for engagement

### NSERC Machine Learning Research

Queen's Department of Physics

📅 May 2022 - Sept 2022

- Derived Statistical Mechanics and Nosé Hoover dynamics for neural networks
- Subclassed Keras models to implement thermostated gradient descent
- Reduced computing time from 5 days to under 1 hour by leveraging a mostly idle compute cluster

### Physics Research Assistant

Queen's Department of Physics

📅 July 2021 - Sept 2021

- Calculated probability density functions of naval ship sub-system locations using TensorNetworks built in Python with packages developed by the physics department
- Built a visual interface to display the probability density of the location of naval ship sub-systems

### Teaching Assistant for Engineering Design

Queen's Department of Engineering

📅 September 2022 - January 2023

- Helped students improve technical writing and understand the design process by assisting in tutorials, providing feedback on deliverables, and answering questions

## EDUCATION

### Mathematics and Computer Engineering

Queen's University

📅 September 2019 - April 2024

### French Immersion

DELF B2 Certified

📅 2019

## SKILLS

Teamwork

Jira

Bitbucket

Confluence

Presenting

Curious and Learning Focused

Rapid Prototyping

Frontend Design

Google Cloud Platform

Python, React, KNIME

## COURSEWORK

- Probability I and II
- Information Theory
- Advanced Data Analytics
- Engineering Design Courses
- Database Management Systems
- Algorithms I
- Fundamentals of Software Development

## EXTRA

- Queen's Programming Competition (1st)
- QMIND AI Hackathon (1st)
- Ontario Engineering Competition (3rd)
- QMIND Arrhythmia Detection Project
- Math, Physics, and CS Tutor

# PROJECTS

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## Math Engineering Capstone Project

### MTHE 493

📅 September 2023 - April 2024

- Built a Generative Adversarial Network using Python + TensorFlow to address data privacy and scarcity for AI in healthcare
- Implemented  $L_\alpha$  GAN using a parameterized version of the Jensen-Shannon Divergence as a loss function which resulted in a lower FID score

## Team Lead at QMIND

### Arrhythmia Detection and Classification

📅 September 2021 - May 2022

- Researched methods for pre-processing and feature extraction on time series data, constructed models to classify heartbeats resulting in a classification accuracy of 95%

## QMIND Project Manager

### Reinforcement Learning Project

📅 May 2022 - May 2023

- On-boarded the team by running coding workshops and working through reinforcement learning examples
- Read papers, watched YouTube videos, and hosted presentations to learn about a new topic that we would not have otherwise been exposed to in class
- Developed a Q-Learning Model capable of landing a rover on the moon while considering multi-objective optimization