

Summary of Qualifications

- Technical skills include machine learning algorithms, software development, mechanical design, technical documentation, and sustainability-related research
- Communication and organization skills showcased through optimization of systems at previous co-ops
- Experience using and developing machine learning algorithms in real-world applications through research positions and co-ops
- Software development experience gained throughout high school and university (**Java, C, Python, C++**)

Relevant Experience

Data Analyst Assistant / Shenzhen Lansi Institute of AI in Medicine / Shenzhen, China / Jan. 2022 – April 2022

- Analyzed data and generated a predictive model for prognostic gene signatures and Tumour Mutational Burden (TMB) using machine learning algorithms (**LASSO regression, univariate and multivariate COX regression analyses**) in **R** and **Perl** resulting in creation of a gene signature for hepatocellular carcinoma
- Developed a k-nearest neighbours algorithm in **R** to clean clinical data from the International Cancer Genome Consortium for analysis
- Evaluated predictive model using a receiver operating characteristic (ROC) curve, tabulating an acceptable predictive efficacy with AUC = 0.805

Research Assistant / Research Apprenticeship, Dr. XiaoYu Wu / Waterloo, ON / Jan. 2021 – Dec. 2021

- Helped construct a **Markov Chain Monte Carlo** energy consumption model in **VBA** and **Python** simulating activity and heating loads for 1,000 consumers over 8,760 hours (one year), presenting findings and model at the International Green Energy Conference in July 2021
- Model algorithm included simulation of inhabitants' daily habits including 10 different activities throughout the day, chosen and distributed stochastically
- Added capability to observe adjusted habits of individual residents, as well as monitor the effect these changes had on the hourly, daily, and annual consumption allowing for precise tuning of model variables
- Significantly improved the accuracy of the per-day simulation to within 5% of verified values
- Currently working on publishing a paper in the International Journal of Green Energy on this research

Mechanical Engineering Apprentice / MCW Consultants / Toronto, ON / May 2021 – Aug. 2021

- Analyzed over 30 sites ranging from apartment buildings to detention centers to determine compliance with COVID-19 restrictions pertaining to filtration, outdoor air requirement, and air handling unit scheduling
- Halved anticipated project timeline through streamlining of reporting process and employee training

Engineering Co-Op Student / MCW Custom Energy Solutions / Toronto, ON / Jan. 2020 – April 2020

- Performed both an energy audit and review of various HVAC systems for Ryerson University's Student Learning building, resulting in the development of multiple energy-saving measures
- Created energy models to estimate cost-effectiveness of certain retrofits in different energy-saving measures
- Drastically reduced the time required for technical document creation through the use of **VBA** macros

Education

Candidate for Bachelors of Applied Science / University of Waterloo / Waterloo, ON / Sept. 2019 – April 2024

Additional Activities

Skittle Sorter (C++) / September 2019

- Developed a sorting algorithm for skittles/pills, as well as the various skittle transportation mechanisms

Various Games (Java) / September 2018 – June 2019

- Coded various games (Connect 4, Blackjack, Hangman (also coded in **Python**), Rock Paper Scissors) as a part of the AP Computer Science A course (Exam score: 5)