

# ALAIN LOU

ECE, University of Waterloo

## Contact

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## Profile

- Maintained high academic standing in rigorous curricula while pursuing side projects, demonstrating time management and organization skills
- Proven experience in technical (programming) and soft skills (conflict resolution, communication, and leadership)
- Python (Numpy, Openpyxl), Java, C++, REST APIs, R, MATLAB/Octave, Web Dev.

## Education

**B.AS., HONOURS COMPUTER ENGINEERING**

*University of Waterloo, 2023*

## CERTIFICATIONS

Machine Learning - Stanford University

Neural Networks - University of Toronto

HCOP Level 2 National Hockey Referee

Certification

## Awards

- 2018** President's Scholarship of Distinction
- 2018** Digital Science, SAS Big Data Challenge
- 2017** Top 50, Sr. Canadian Computing Comp.
- 2017** Top 9, DECA (int'l case competition)
- 2017** Finalist (top 15), Canadian Chemistry Olympiad (for national team)

## Experience

### Research Assistant - Dr. Jeff Graham

*Department of Psychology, University of Toronto  
July - September 2017*

- Developed additional features using Javascript for online learning platform
- Software scripting with Openpyxl and Numpy (Python) on Excel spreadsheets, data analysis with R and MATLAB
- Project management for a small research team

### Hockey Referee - SHL, Parkdale Flames, CCIHA

*October 2015 - April 2018*

- Officiated 350+ games, demonstrating conflict resolution, communication, and leadership skills

## Projects — viewable on [github.com/alainlou/projectname](https://github.com/alainlou/projectname)

### ClimateChangeDB - STEM Fellowship/SAS Big Data Challenge

*Fall 2017 - Spring 2018*

- Used Twitter and Facebook REST APIs to extract and analyse social media posts about climate change
- Research paper won Digital Science Award at the STEM Fellowship/SAS Big Data Challenge 2018

### LearnBach - Personal

*Summer - Fall 2017*

- Scripts for conversion between digital music files (MIDI) and text files (.txt), file retrieval from online repository of music files, and conversion to .csv data representation
- Used to train a neural network computer algorithm that imitates Baroque keyboard composition

### DineSafe - Presented to City of Toronto

*Spring - Summer 2017*

- Full-stack development:
- Developed client for noSQL database of JSON Objects (IBM Cloudant)
- Android mobile application using Google Maps and Geolocation APIs
- XML to JSON converter for City of Toronto OpenData

### HardwareProjects - Personal

*Summer 2018 - Present*

- Texas Instruments LM386 amplifier circuit
- Arduino DC motor controller with rain sensor

### Competitive Programming - profile on [dmoj.ca/user/fertilebean/solved](https://dmoj.ca/user/fertilebean/solved)

*Spring 2016 - Present*

- Perfect score on Junior Canadian Computing Challenge, honour roll (top 50) on Senior Canadian Computing Challenge, 8th place at Provincial ECOO competition
- Implemented advanced graph theory, search, and heuristics algorithms in Python, Java, and C++