

Jeffrey Liu

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PROFILE

- + Three years of competitive programming experience
- + National and International Math Olympiad experience
- + Strong student, excelling in enriched math/cs courses

LANGUAGES

Python • Java • C++
C • HTML • Lisp • Scheme

TECHNOLOGIES

Spring/Spring Boot • SQL
JPA/H2 • Keras • Tensorflow
NumPy • SciPy • Pandas
Linux • MATLAB • LaTeX • Git

EDUCATION

University of Waterloo
Bachelor of Computer Science
+ Expected Graduation: 2023
+ 98.3% Major GPA

Marc Garneau CI
TOPS Program

INTERESTS

Academic:
+ Artificial Intelligence
+ Combinatorics
+ Functional Programming
Non-Academic:
+ Swimming
+ Cooking
+ Painting

WORK EXPERIENCE

Wish Inc.

Future Software Engineer Intern • *San Francisco, CA* • May – Aug. 2019
+ [Project to be determined]

Olympiads School

Teacher's Assistant / Tutor • *Toronto, ON* • July 2017 – Mar. 2018
+ Taught weekly classes in national-level contest and curriculum math
+ Organized Math Tournaments; advertising, problem writing, lecturing

PROJECTS

Neural Network Fooler • Python

- + Implemented an algorithm which generates an adversarial attack, aka images incorrectly classified by neural networks with high confidence
- + Tested the algorithm on deep neural networks trained on classical datasets such as MNIST and ImageNet; uses Fast Gradient Sign Method
- + Recreated a neural network from scratch for educational purposes

Euclidean Geometry Automatic Theorem Prover • Python / Java

- + Designed an engine which solves proof and computational Olympiad-level geometry problems; outperforms 99.7% of secondary school students
- + Executes depth-first search with first order resolution of Horn clauses and template matching schemes; utilizes JPA to create a deductive database
- + Developed website and backend with Spring MVC; created engine in Python and wrapped in a service; employed test driven development

Autonomous Mine Sweeper • C++

- + Programmed Arduinos to control three omnidirectional wheels
- + Created inductor-based metal detector, ultrasound-based positioning system, and electrical circuitry for the detection and retrieval of metal discs
- + Engineered a wooden vehicle base; soldered circuitry, custom PCBs, motors

ACHIEVEMENTS

- + **Canadian Computing Olympiad 1x Silver, 1x Bronze**
(placed 13th and 15th nationally)
- + **Asian Pacific Mathematical Olympiad 2x Qualifier**
(invited as one of the top 20 Canadian high school students in the Canadian Open Mathematics Challenge)
- + **Canadian Mathematical Olympiad 2x Qualifier**
(placed 12th and 19th nationally)
- + **United States of America Mathematical Olympiad Qualifier**
(invited as one of 242 students out of over 120k AMC participants)
- + **Euclid Mathematics Contest 2018 plaque winner**
(3rd overall, 1st in grade 12 nationwide out of 18.4k participants)
- + **CIBC National Scholarship**
(rewarded annually to one student entering the UW Faculty of Math)
- + **Citi Canada Scholarship**