

# Jeffrey Liu

(647) 898-5338 • [jy39liu@uwaterloo.ca](mailto:jy39liu@uwaterloo.ca) • <http://jeffr.ee/>

I like thinking critically to find intelligent solutions to big problems. Hard worker. Broad interests. Love to Learn.

## WORK EXPERIENCE

**Uber ATG** Toronto, ON (Remote)  
*Research Intern* May – Oct. 2020

- + Owned and led a research project advancing the field of *neural architecture search*
- + Asked questions, reviewed literature, designed and conducted ML experiments, analyzed and presented results; with guidance and mentorship from industry leading scientists
- + Direct Supervisor: [Renjie Liao](#). Advisor: [Prof. Raquel Urtasun](#)
- + Paper based on this work to be submitted to *ICLR 2021*

**Wish** San Francisco, CA  
*Software Engineer Intern* • Python, ReactJS, MongoDB, Kubernetes May – Aug. 2019

- + Full stack SWE on the merchant payments team, which handles payment of billions of dollars annually
- + Created a dashboard and API to automatically detect, diagnose, and fix disbursement issues; helped resolve and prevent millions of dollars' worth of underpayments/overpayments
- + Contributed to admin tools, fraud detection, payment holds, data logging and pipelining

## PROJECTS

**Euclidean Geometry Automated Theorem Prover** • Python

- + Created an AI engine which, given an Olympiad geometry problem, automatically finds a solution and outputs a human-readable proof
- + Designed and implemented a rule-based template matching solver over first order predicate logic
- + Leveraged multiprocessing for significant performance gains
- + Next steps: incorporate ideas from graph representation learning

**Mathematical Optimization Library** • C++ (Eigen), Python

- + Implemented state-of-the-art algorithms to solve various linear, integer, and convex programs
- + Incorporated a user-friendly interface via python bindings and a symbolic math library (SymPy)
- + Played with applications: traveling salesman art, traditional machine learning

## AWARDS

- + **Canadian Computing Olympiad 1x Silver, 1x Bronze** (13<sup>th</sup>, 15<sup>th</sup> nationally)
- + **Asian Pacific Math Olympiad 2x Qualifier** (top ~20 nationally)
- + **Canadian Math Olympiad 2x Qualifier** (finished 12<sup>th</sup>, 19<sup>th</sup> nationally)
- + **United States of America Math Olympiad Qualifier** (top 242 of 120k AMC participants)
- + **Euclid Mathematics Contest 2018 Plaque Winner** (3<sup>rd</sup> in Canada, 1<sup>st</sup> in my grade)

## EDUCATION

**University of Waterloo** Sep. 2018 – Apr. 2023 (Expected)  
B. Math., Triple Major in Computer Science, Combinatorics & Optimization, Pure Math.  
+ 93.6% Cumulative GPA (95.2% Math GPA, all terms Dean's Honour List)  
+ CIBC National Scholarship (awarded to the top student entering the UWaterloo Faculty of Math)

## INTERESTS

- + **Professional:** high performance programming, machine learning, enumeration, graph theory,
- + **Hobbies:** swimming, watercolour painting, weightlifting (not that good though)