

# Jeffrey Liu

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

## 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)

## WORK EXPERIENCE

**Citadel Securities** *Chicago, IL*  
*Quantitative Researcher Intern* (Low Latency Trading) June – Aug. 2022  
+ (Incoming) Building statistical/machine learning models to create fast trading algorithms  
*Software Engineer Intern* (Low Latency Trading) • C++, SystemVerilog (FPGAs) June – Aug. 2021  
+ (NDA) Used modern C++ together with specialized hardware in high frequency trading systems at the limits of computation speed

**Uber Eats** *Remote*  
*Software Engineer Intern* (Shopping Mechanics) • Go Jan. – Apr. 2021  
+ Worked on order and checkout back-end; improved user experience and error propagation  
+ Added back-end features, end-to-end black-box integration tests for the new Uber Eats checkout flow

**Uber ATG** *Remote*  
*Researcher Intern* • Python (PyTorch, Horovod) May – Dec. 2020  
+ (NDA) Owned and led a research project in deep learning + computer vision for self-driving cars  
+ Utilized and advanced state-of-the-art in graph neural networks, graph generation, neural architecture search  
+ Supervisor: [Prof. Renjie Liao](#). Advisor: [Prof. Raquel Urtasun](#)

**Wish** *San Francisco, CA*  
*Software Engineer Intern* (Payments) • Python, ReactJS, MongoDB, Kubernetes May – Aug. 2019  
+ Created and owned a dashboard full-stack to monitor and correct issues in merchant payments  
+ Contributed to admin tools, fraud detection, payment holds, data logging and pipelining

## PROJECTS

**3D Physics Simulator** • C++ (OpenGL, Eigen)  
+ Implemented a constraint-based rigid body simulator, with joints, springs, and friction simulation  
+ Wrote GPU code/shaders in GLSL, calculated Blinn-Phong lighting, shadows, bloom, and more  
**Euclidean Geometry Automated Theorem Prover** • C++, Python  
+ Created an AI engine which, given an Olympiad-level geometry problem, automatically finds a solution and outputs a human-readable proof  
+ Designed and implemented a first order predicate logic engine and a rule-based template matching solver

## AWARDS

+ **Canadian Computing Olympiad 1x Silver, 1x Bronze** (top 15 in Canada)  
+ **Canadian Math Olympiad 2x Qualifier** (placed top 20 in Canada both times)  
+ **United States of America Math Olympiad Qualifier**

## INTERESTS

+ **Professional:** applying math to programming, high-performance and data-driven computing  
+ **Hobbies:** swimming, [watercolour painting](#), weightlifting (not that good though)