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.
+ 93.2% Cumulative GPA (95.2% Math GPA, all terms Dean's Honour List)

WORK EXPERIENCE

Waabi — *Toronto, ON*
Research Intern (Sensor Simulation) — Sept – Apr. 2023
+ Fundamental research in machine learning and computer vision for scalable, realistic, and efficient 3D simulation
+ Unified ideas from traditional graphics pipelines with modern deep learning methods (neural radiance fields)

Citadel Securities — *Chicago, IL*
Quantitative Research Intern (Low Latency Alpha Research) — June – Aug. 2022
+ Distributed machine learning and statistical modeling to analyze large high-frequency financial datasets and extract trading signals
+ Designed, implemented, and backtested/simulated quantitative trading algorithms to monetize alphas

Software Engineer Intern (Low Latency Trading) • C++, SystemVerilog (FPGAs) — June – Aug. 2021
+ Used modern C++ together with specialized hardware in high-frequency trading systems
+ Applied low level network engineering (TCP/IP), statistical modeling, and rigorous testing

Uber ATG — *Remote*
Research Intern • Python (PyTorch, Horovod) — May – Dec. 2020
+ Owned and led a research project in probabilistic neural architecture search with deep graph generation
+ Implemented and designed experiments with graph neural networks, reinforcement learning, Bayesian inference
+ Supervisor: Prof. Renjie Liao. Advisor: Prof. Raquel Urtasun

Uber Eats — *Remote*
Software Engineer Intern (Shopping Mechanics) • Go — Jan. – Apr. 2021
+ Developed new Uber Eats checkout back-end; improved user experience and error propagation

Wish — *San Francisco, CA*
Software Engineer Intern (Payments) • Python, ReactJS, MongoDB, Kubernetes — May – Aug. 2019
+ Created and maintained a dashboard full-stack to monitor and correct issues in merchant payments

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 a geometry problem, generates and outputs a human-readable proof

AWARDS

+ **Canadian Computing Olympiad 1x Silver, 1x Bronze**
+ **Canadian Math Olympiad 2x Qualifier**
+ **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)