First Last

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Skills

- **Languages**: C, C++, Python, Java, Scala, Bash, Rust, JavaScript, TypeScript
- **Tools/Platforms**: Linux, Docker, Nginx, DPDK, Django, Flask, Node, Express, Google Cloud Platform
- **Concepts**: Computer Networking, Concurrency, Lock-Free Programming, High-Performance Computing, Object Oriented Programming, MVC Pattern

Experience

- **D. E. Shaw & Co.** *June 2024 – Aug 2024*
  Software Engineering Intern (Incoming)
  - Researching and implementing real-time distributed systems for systematic trading activites
- **NVIDIA** *Jan 2024 – Apr 2024*
  Software Engineering Intern (GeForce NOW Core Streaming) | **C++, Python**
  - Built a high-performance video snapshotting tool to troubleshoot GeForce NOW issues, a product with 20 million users
  - Developed the tool to capture snapshots of raw frames and encoded bitstream on streaming servers, allowing the client to highlight corruption and other video-related issues
  - Optimized the tool to process 750 MB/s of raw frames (4K 60fps NV12 frames) without performance hits (< 1fps drop)
  - Updated video stream networking protocol to support remote configuration, triggering, and feedback for the snapshot tool directly from the client
- **Huawei** *May 2023 – Aug 2023*
  Software Engineering Intern (Computer Networking R&D) | **C, DPDK**
  - Designed a connectionless and reliable transport layer protocol (UDP-based) for high-performance, low-latency networks
  - Created library using Dataplane Development Kit (DPDK) to process UDP packets, with up to 18x speed improvement over Linux kernel sockets
  - Architected and implemented library for the protocol in C, employing lock-free data structures and message passing to achieve processing of 150+ concurrent connections on a single machine
- **AMD** *May 2022 – Aug 2022*
  Software Engineering Intern | **C++, Python, GTest**
  - Developed and maintained debugger for 200+ Kernel-Mode Driver developers across AMD
  - Added feature to inspect hardware scheduled queues, enabling debugging of critical launch-gating issues
  - Proposed and implemented improvements across unit test (GTest) and CI pipeline, reducing test code size by up to 50%

Awards/Competitions

- **ICPC ECNA Regionals**: Represented Waterloo in 2021 and 2022, placing 4th and 6th against 90+ other university teams
- **Putnam 2021**: Placed in the top 500 of the most famous University-level mathematics competition
- **USACO Open 2021 (Platinum)**: 32nd of pre-college contestants in the highest division of the USA computing olympiad
- **Google Code Jam 2021**: 3rd of Canadian contestants (top 0.1%) in computing competition with 90,000+ contestants
- **Canadian Computing Olympiad 2021**: Achieved a silver medal, placing top 10 in a national level contest

Projects

- **Game Engine (C++)**: Created a game engine with entities, movement patterns, collision detection, and a graphics library
- **LACS Compiler (Scala, MIPS Assembly)**: Built compiler for functional language targeting MIPS. Supports closures, nested functions, static typing, garbage collection, and tail-call optimization

Education

- **University of Waterloo** *Sep 2021 – Apr 2026*
  Honours Bachelor of Computer Science; GPA: 95.10%
  - **Coursework**: Multicore Programming, Operating Systems, Algorithms, Data Structures, Databases, Statistics, Linear Algebra
  - **Scholarships**: Faculty of Mathematics Scholarship, President's Scholarship of Distinction