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Skills

- **Languages/Tools:** C, C++, Python, Java, Rust, Scala, JS/TS, Bash, DPDK, Docker, Nginx, Django, Flask, Node, Express
- **Techniques:** Data Structures, Algorithms, Concurrency, Computer Networks, Databases, Object-Oriented Programming
- **Platforms:** Windows, Linux, Google Cloud Platform

Experience

- **Huawei – Network Engineering Intern** May 2023 – Present
Engineering protocols and libraries for high-throughput, low-latency networks (C, DPDK)
 - Created DPDK-based library to process UDP packets, with up to 18x speed improvement over Linux kernel
 - Collaborated to design a connectionless but reliable transport protocol applicable in high-performance scenarios
 - Designed and implemented library for the protocol in C, employing concurrent data structures and message passing to achieve processing of 150+ simultaneous connections on a single machine
 - Developed logging software to track and troubleshoot performance with minimal (<<1%) impact on runtime
 - Used tools such as gprof, gdb, and tcpdump to resolve complex concurrency and networking issues
- **AMD – Software Engineering Intern** May 2022 – Aug 2022
Developed and maintained driver debugger for 200+ KMD developers across AMD (C++, Python)
 - Added feature to inspect hardware scheduled queues, enabling debugging of critical launch-gating issues
 - Proposed and implemented improvements used across unit (GTest, GMock) and CI test infrastructure, reducing test code size by up to 50%
 - Automated formatting of tables, nested lists, and dictionaries, ensuring consistent output and deduplication of code
- **WePlate 🍽️ – Backend Engineer** Jan 2022 – June 2022
Designed, developed, and deployed backend system for nutritional insights (Python, Django)
 - Processed and served 10,000+ cafeteria scheduling and nutritional items using Django REST Framework
 - Implemented Simulated Annealing algorithm to autogenerate portion sizes optimized for nutritional value
 - Deployed project as scalable webservice using GCP AppEngine and CloudSQL

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 in international algorithms competition with 90,000+ contestants
- **CCC & CCO 2021:** 1st out of 2,900+ contestants at Canada's most prestigious high school programming contest (CCC), qualifying for the CCO (top ~40 CCC) and achieving a silver medal

Projects

- **C++ Game Engine:** Designed and implemented object-oriented (OOP) game engine built around the MVC pattern. The engine supports handling a variety of entities with built in entity movement, collision detection, and a graphics library
- **Competitive Programming Tools 🐍 🐘:** Tools that greatly speed up implementation and debugging during programming contests. Includes automated local testing, stress testing, and browser integration. Available as a Python CLI or VSCode extension (TypeScript and React.JS)
- **LACS Compiler:** Scala-based compiler for functional language targeting MIPS. Includes support for closures, nested functions, static typing, garbage collection, and tail-call optimization
- **Minecraft Server Plugins:** Used Java, Kotlin, and the Spigot API to add features such as KitPVP mechanics, custom bosses, and hats

Education

- **University of Waterloo** Sep 2021 – Apr 2025 (Anticipated)
Honours Bachelor of Computer Science; cGPA: 95.10%
 - **Coursework:** Object Oriented Programming, Data Structures, Statistics, Linear Algebra, Combinatorics
 - **Scholarships:** Faculty of Mathematics Scholarship, President's Scholarship of Distinction