

# Shihan Sharar

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## Education

### University of Waterloo

Bachelor of Computer Science

Waterloo, ON

Sept 2023 - Aug 2027 (Expected)

- **Dean's List** (all terms); CGPA: **94%**, Faculty GPA: **96%** (with advanced courses)
- **Clubs:** Measuring rover inclination angle for UW Robotics Club
- **Skills:** C++, C, C#, Java, Go, Python, React, Typescript/Javascript, Node.js, Next.js, CSS

## Experience

### BitGo

Software Engineer Intern

Palo Alto, California

Sep 2025 - Dec 2025 (Expected)

- Incoming SWE for Fall 2025, Prime Trade team.

### University of Waterloo

Undergraduate Research Assistant

Waterloo, ON

May 2025 - Aug 2025

- Developing secure-world **C++** applications to monitor and enforce control-flow integrity of **LLM agents** on an emulated Android TEE under Professor Nadarajah Asokan.
- Engineered a command-line interface in **C++** leveraging the **llama.cpp API** to interact with LLMs, integrating an executor framework to dispatch model responses into corresponding actions.
- Built a secure **OP-TEE** monitor in **C** to validate all LLM interactions, preventing prompt-injection attacks.

### Ford Motors Canada

Platform Software Developer - Provisioning

Ottawa, ON

Jan 2025 - Apr 2025

- Boosted unit-test coverage for the provisioning component from **95.0%** to **99.6%** line coverage and from **92.5%** to **98.7%** decision coverage using **C++** and **GTest/GMock**, while driving code-duplication down from **0.5%** to **0%**.
- Engineered a helper class for async invocation of component-proxy methods, boosting service responsiveness.
- Integrated **Valgrind** & **sanitizer** tooling into the **Python**-based functional-test suite, automating detection of CPU bottlenecks & memory leaks, and analyzing the resulting logs to eliminate **20+** issues.
- Eliminated **120+** code smells and slashed duplication from **20%** to **0%** for the Android provisioning component.

### InsightIn Technology

Software Engineer Intern

Dhaka, Bangladesh

Jul 2024 - Aug 2024

- Designed **5+** responsive web pages in **Figma** and implemented them using **React/TypeScript**, boosting runtime performance by **~30%** through use of React hooks and memoization.
- Built a library of table-based **HTML** email templates with inline **CSS**, executing full-suite **Litmus QA** to ensure delivery across all major desktop and mobile clients.

## Projects

### Velocore: Multithreaded C++ Trading Engine with React Visualization



- Built a multithreaded trading engine using **Crow**, **Boost.Asio**, & **Boost.Beast** for async I/O, & websocket communication; parsing **1,000+** orders in under **30ms** with low-latency trade execution and health-check endpoints.
- Integrated **Alpaca's** market-data feed and paper-trading **REST API** into a custom broker interface for real-time quote ingestion, order management, and portfolio tracking.
- Engineered a **React/Next.js** frontend with real-time order entry and live order-book/portfolio visualizations.

### ClothAI: AI Outfit Analyzer with Solana Integration



- Developed a mobile app using **React Native** and **Expo Router** to capture and analyze outfit images.
- Integrated **Solana** blockchain for wallet auth and Cloth token transactions, using Phantom Wallet deeplinking.
- Leveraged Google Generative AI (**Gemini**) for photo analysis and tailored outfit recommendations.

### RAIlnet: C++ Multiplayer Strategy Game



- Engineered a **C++** strategy game by applying **MVC** architecture, **SOLID** principles (SRP), and the **Observer** design pattern to decouple core logic from both text-based & **X11** graphical interfaces.
- Scaled gameplay to 2- and 4-player modes with dynamic board layouts and automated elimination cleanup.