

Tyler Chen

SOFTWARE ENGINEER · SYSTEMS & AI

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Work Experience

Huawei Canada

Waterloo, Canada

SECURITY RESEARCH ENGINEER

September 2025 - December 2025

- Implemented **OAuth** security protocol POC for agentic communication protocols supporting unprompted resource access on the user's behalf.
- Developed hardware-backed **TPM** encrypted tree structure encoding agent's recursive call history to subagents and resources.
- Created LLM policy evaluator at trusted third-party to ensure alignment between user intent and Agent-to-Agent or Agent-to-Resource calls.
- Invented custom **AI agent** framework with focus on local LLMs and providing abstract interfaces for tool call handlers, allowing for auth injection.

Ford Inc.

Ottawa, Canada

PLATFORM SOFTWARE ENGINEER

January 2025 - April 2025

- Member of **SOA** team responsible for supplying low-level interfaces to vehicle processes and supporting inter-process communication.
- Designed concurrent embedded **C++ AUTOSAR** applications for vehicle microservice discovery and ECU procedure calls, for **QNX** and **WRLinux**.
- Contributed to critical toolchain responsible for managing builds of **300+** applications on various versions of AUTOSAR.

Cortico

Burnaby, Canada

BACKEND DEVELOPER

May 2024 - August 2024

- Designed secure **Django** APIs for personal health information, increasing data availability to patients and doctors and maintaining high security.
- Developed metrics system for internal evaluation of feature usage and patient experience tracking, supporting marketing and product teams.

Pixelpad.io

Vancouver, Canada

FULL-STACK DEVELOPER INTERN

July 2021 - December 2023

- Built multiplayer game engine and **networking library** used by other developers on the platform to ship multiplayer games.
- Created frame-level game debugger with pause, step-forward, and state inspection capabilities for the platform's game engine.
- Developed Unity-style asset and code-snippet marketplace with assets reaching **2000+** downloads.

WARG

Waterloo, Canada

AUTONOMY TEAM MEMBER

September 2023 - Present

- Created 3D **OpenCV** environment simulator for local testing of flight software and control systems with simulated ArduPilot drone.
- Rendered fake environment with texture homography according to orientation and gps input from MAVLink.

Projects

RepoStory - Git Analysis Tool [🔗](#)

Waterloo, Canada

WINNER, BEST USE OF CEREBRAS - HACK THE NORTH 2025

September 2025

- Generates development timelines from git repositories by identifying milestone commits and using AI agents to analyze key development steps.
- Identified milestones via a file-weighted **churn scoring heuristic**; automated selection using git bisect driven by a custom threshold script.
- Optimized analysis time by **85%** on large repos (**>1000** commits) through blobless fetch, selective scoring, and lazy file diffing.

CanSat - Seismometer Space Probe [🔗](#)

Waterloo, Canada

ARDUINO, C, COMMUNICATION PROTOCOLS · BEST SCIENCE MISSION AWARD - CANSAT 2023

January 2023 - April 2023

- Developed Arduino probe for collection and analysis of atmospheric telemetry and seismometric data, with GPS, radio, and gyroscope.
- Connected multiple devices with **UART**, **I2C** protocols and emulated second serial port.

Education & Relevant Courses

University of Waterloo

Waterloo, Canada

B.S.E IN SOFTWARE ENGINEERING | GPA: 4.0

September 2023 - Present

- CS 241E**: Built compiler from Lacs to MIPS in Scala. Implemented garbage collector, closures, register allocation, CYK parser.
- SE 212**: Formal logics, semantics. Formal proofs of program correctness. Boolean algebra.
- CS 240**: Data structures and algorithms. Complexity analysis.

Skills

Languages

C, C++, Scala, Python, TypeScript, Java, RISC-V Assembly, VHDL, Bash, Lua

Libraries

React, AstroJS, FastAPI, Flask, ExpressJS, Arduino, Raspberry Pi, OpenAI SDK, Authlib

Tools

Git, Docker/Podman, Make, CMake, GDB, Valgrind, QEMU, Wireshark, SSH, Neovim, HuggingFace, Ollama, HuggingFace

Concepts

Compiler Design, Computer Architecture, Embedded Systems, Agentic AI, Security & Authentication, Software Design Principles