

Yutong Zhu

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EDUCATION

University of Waterloo

Waterloo, ON, Canada

Bachelor of Applied Science in Computer Engineering; CGPA: 3.89/4.0

Sep. 2022 – May 2027 (expected)

- Relevant Courses: Real-Time Operating Systems, Systems Programming and Concurrency, Algorithms and Data Structures

INTERNSHIP EXPERIENCE

Snowflake

Jan. 2026 – Apr. 2026

Software Engineer

Menlo Park, CA, USA

- Accepted offer to join the Database Query Engine team for Winter 2026.

Huawei Canada

Jan. 2025 – Apr. 2025

Compiler Engineer | C++, LLVM, Python

Markham, ON, Canada

- Contributed to compiler optimization and profiling for HarmonyOS in the Mobile CPU team.
- Developed an LLVM transform pass for core-aware sampling profiles and optimized instruction scheduling, achieving a 1% performance gain in mobile workloads.
- Extended AutoFDO to generate CPU core-specific profiling data, improving profile-guided optimizations.
- Ported and fixed LLVM's Merge Similar Functions pass, reducing code size by 5%.
- Created a Python script for analyzing LLVM statistics, now widely adopted across the team.
- Collected and analyzed function inlining statistics in core system libraries to identify optimization opportunities.
- Optimized a lightweight system logging library with instrumentation-based PGO, reducing CPU cycles by 31% within the library.

Tangam Systems

May 2024 – Aug. 2024

QA Automation Engineer | Cypress, JavaScript, SQL, SQL Server Management Studio

Waterloo, ON, Canada

- Developed and maintained test cases for UI responsiveness, file uploads/downloads, and navigation.
- Reduced automation suite runtime from 72 minutes to 62 minutes by optimizing SQL setup scripts.

AUAV Technology

Sep. 2023 – Dec. 2023

Software Developer | TypeScript, React, Node, Express.js, MySQL, AWS

Calgary, AB, Canada

- Developed a SaaS platform for online examinations using TypeScript, React, Node.js, and MySQL.
- Built and optimized REST APIs for authentication, payments, and exam management with robust backend features for permissions and data handling.

PROJECTS

LLVM Contributions | C++, LLVM, Clang

- Contributed enhancements and fixes to Clang diagnostics.
- Improved -Wtautological-overlap-compare warning; detected real-world bugs including one in SQLite.
- Enhanced diagnostic warnings for sign-unsigned integer comparisons in complex expressions.
- Fixed scope misassignment in switch case statements by refining AST traversal.
- Added -Wimplicit-int-comparison-on-negation warning flag for finer diagnostic control.

Real-Time Operating System | C, STM32, Embedded Systems

- Designed and implemented a lightweight RTOS for STM32 microcontrollers.
- Developed a hybrid scheduler with cooperative, preemptive, and EDF algorithms.
- Implemented low-level context switching using inline assembly and C.
- Built a dynamic memory allocator using a first-fit free-list strategy for efficient heap management.

Clever Comrade | React, Node.js

- Developed an AI-powered study tool providing class-specific answers from OneDrive materials, winner at NewHacks 2023.

TECHNICAL SKILLS

Languages: C/C++, JavaScript/TypeScript, Python, SQL, Bash, Assembly, HTML/CSS

Technologies/Frameworks: LLVM, Clang, Perf, Git, Linux, Node.js, Express, Cypress, React, MySQL