

Allison Zhao

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EDUCATION

McMaster University

Sept. 2022 – May 2027

Bachelor of Applied Science in Computer Science with Co-op

3.9/4.0 GPA

- **Achievements:** Deans' Honour List, The Dr. Harry Lyman Hooker Scholarship, The Pollock Family Academic Grant, The McMaster University Award of Excellence
- **Extracurriculars:** DeltaHacks VP Logistics + Technical Exec, McMaster Start Coding Mentor

SKILLS

Languages: Python, SQL, TypeScript/JavaScript, C/C++, Java, Haskell, HTML/CSS

AI/ML: PyTorch, Hugging Face Transformers, LangChain, LangGraph, TRL (LoRA, SFT, DPO), DeepSpeed, Ollama, Whisper, Gradio, MCP, RAG, pgvector, Chroma

Frameworks: FastAPI, NextJS, React, Tailwind CSS, Vite

Tools: Git/GitHub, Linux, Bash, Docker, pytest, PostgreSQL, MySQL, Supabase, Google Cloud Platform

EXPERIENCE

DevOps Engineer

May 2025 – Present

Huawei Technologies Canada

- Owned the TPC-H benchmark harness for GaussDB, a distributed MPP database, automating build deploy, cluster startup, and per-query QphH scoring across **12 machines** at 10TB/30TB scale; delivered the measurement loop the optimization team used to reach a **39.974M QphH world record** and cut post-crash log turnaround **from 2 hours to 15 minutes**
- Designed an **8-mode** agent harness for an internal AI coding assistant, writing Markdown skill definitions with persistent cross-session memory that encode the team's test-authoring and code-scanning workflows; cut debugging of crash dumps and logs **from half a day to 1 hour** for **8 of 20 engineers** on the TaurusDB team
- Wrote **90+** regression and unit tests for TaurusDB Serverless's buffer pool covering resize, rollback, timeout, and concurrency edge cases across a decoupled compute-storage architecture, catching **6 pre-release bugs** before production

Undergraduate Research Assistant

May 2024 – Aug. 2024

McMaster University

- Built a RISC-V processor emulator in Haskell implementing **168 instructions** across 4 ISA extensions, validating **100% correctness** with a Dockerized QEMU pipeline of **82 automated tests**
- Ported a published **2.26x-speedup** SIMD implementation of the ChaCha20-Poly1305 encryption algorithm from IBM Z to IBM POWER processors, translating the parallel arithmetic across two vector instruction sets
- Implemented **11 SIMD-vectorized math functions** (exp, log, sqrt, trig) for IBM's production MASS library on POWER, meeting the **IEEE 754** accuracy standard required for shipped numerical software

PROJECTS

leet-buddy 🤖 | *TypeScript, React, Chrome MV3, Supabase (PostgreSQL), Vite, Vitest*

- Built a mock-interview agent that runs LeetCode interviews through a **4-phase** conversation state machine (clarify, approach, coding, debrief) with turn caps, quiet-timeout nudges, and rubric-scored debriefs driven by phase-specific prompts
- Designed a provider-agnostic LLM facade supporting **4 backends** (Anthropic, OpenAI, Groq, Gemini) with hourly rate limiting and an output filter that strips code blocks so hints stay in prose and **never leak the solution**

ForgeLab 🤖 | *Python, LangGraph, Ollama, FastAPI, Docker, React*

- Engineered a local **6-agent** code-review pipeline (evaluate, route, research, code, review, verify) orchestrated with **LangGraph** and streamed over WebSocket to a React frontend, with a Docker-isolated executor running pytest, cargo, jest, and go test entirely on a 1B local model in 8GB RAM at **\$0 API cost**