

Leo Zhang

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EDUCATION

University of Waterloo

Bachelor of Applied Science – Systems Design Engineering

Waterloo, ON

Sep 2025 – Apr 2030

TECHNICAL SKILLS

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

Frontend: React, Next.js, Tailwind CSS, Three.js

Backend & APIs: Node.js, Express, FastAPI, Flask, JWT Authentication

Databases: PostgreSQL, MongoDB

AI & Computer Vision: Hugging Face, PyTorch, TensorFlow, OpenCV, MediaPipe, NumPy, Pandas, Gemini, OpenAI

Cloud & DevOps: AWS (S3, EC2, CloudFront, Lightsail), Docker, GitLab CI/CD, Jenkins, Azure DevOps

WORK EXPERIENCE

Software Engineer Intern

The Government of Ontario – MPBSDP

Jan 2026 - Apr 2026

Toronto, ON

- Built **Python** and **SQL** validation scripts to enforce referential joins, reducing downstream data failures by **25%**
- Investigated production API failures by tracing request lifecycles across services, reducing repeat outages by **30%**
- Delivered access-controlled features by implementing role-based permissions to maintain **100%** audit compliance
- Refactored tightly coupled legacy modules into testable components, lowering maintenance overhead by **20%**

Software Engineer

Incendium Academy

May 2025 – Aug 2025

Toronto, ON

- Designed **Flask** REST APIs with concurrency-safe request handling, increasing platform throughput by **30%**
- Implemented CI-integrated unit and integration tests to catch regressions pre-deploy, sustaining **99%** uptime
- Diagnosed authentication and **SQL** query failures by analyzing logs and traces, eliminating dashboard errors
- Optimized **PostgreSQL** analytics queries using targeted indexes, cutting internal dashboard load latency by **25%**

PROJECTS AND CONTRIBUTIONS

Static Binary Decompiler Framework | Python, Next.js, React, FastAPI, PyGhidra, Hugging Face, Gemini, Docker

- Developed filtering heuristics to isolate user functions and remove **80%** of compiler/runtime artifacts in **Ghidra**
- Integrated **Hugging Face** LLM4Decompile with **4-bit quantization**, reducing local inference memory by **70%**
- Orchestrated **3-model** fallback across Modal, local HF, and **Gemini** pipelines to improve refactor reliability

Computer Vision Virtual Input System | Python, OpenCV, MediaPipe, NumPy, PyAutoGUI

- Built real-time hand tracking using **MediaPipe** landmarks and palm centroids to drive cursor input at **60+ FPS**
- Implemented pinch-gesture classifiers with temporal smoothing, improving cursor stability by **40%**
- Designed dual-zone coordinate mapping with independent scaling to improve gesture detection accuracy

Secure Full-Stack Video Streaming Platform | TypeScript, React, Node.js, Express, MongoDB, AWS S3, JWT

- Built a **MERN**-based platform to enable authenticated uploads, video streaming, and granular privacy controls
- Implemented **JWT**-based authorization with **AWS S3** object policies to enforce owner-only video access
- Optimized personalized feed queries using compound **MongoDB** indexes to reduce page load time by **35%**

LEADERSHIP & EXTRACURRICULARS

Hack Club Chapter Founder

Sept 2025

- Led weekly workshops teaching core programming concepts, increasing project completion rates by **25%**
- Organized hackathons through mentor coordination and event planning, boosting chapter engagement by **40%**
- Mentored members on **Git** workflows to streamline onboarding, reducing ramp-up time by **30%**