

Jiale Shang

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HIGHLIGHTS

- University of Toronto MEng (2026) and CS graduate with High Distinction; **3.87/4.0 GPA in 15 graded upper-year CS courses**.
- Built client websites and full-stack applications; developed **Windows debugger tooling with FastMCP and DbgEng**, alongside backend APIs and automated deployment workflows.

TECHNICAL SKILLS

Languages: Python, TypeScript, JavaScript, C/C++, SQL

Application Development: React, Next.js, React Native, Node.js, Flask, PostgreSQL, Supabase

Systems and Tools: FastMCP, DbgEng COM API, Git, Linux, Docker, GitHub Actions, AWS, DigitalOcean, ESP32, Arduino

EDUCATION

University of Toronto June 2026
Master of Engineering, Electrical and Computer Engineering Toronto, ON
Focus: Computer Engineering

University of Toronto June 2023
Honours Bachelor of Science, Computer Science; High Distinction Toronto, ON
Software Engineering Stream

- Completed **17 upper-year CS courses**, including **8 fourth-year courses**, across systems, algorithms, databases, AI, and software engineering; pursued additional upper-year coursework beyond program requirements.

EXPERIENCE

Amazing Drone Shows Mar. 2026 – Present
Web Developer & Designated Drone Pilot Ontario, Canada

- Develop and maintain amazingdronesshows.ca, presenting drone-show services and customer inquiry options; contribute to business operations and coordination.
- Serve as the venture's **designated drone pilot**, with responsibility for planned ground-station-based swarm operations; hold a Transport Canada Advanced Operations certificate with a Flight Reviewer Rating.

University of Toronto Oct. 2025 – Dec. 2025
Research Assistant — CSC311 Course Website Toronto, ON

- Developed interactive website resources for CSC311, a machine-learning course serving approximately **400 students per year**, supporting a flipped-classroom teaching model.
- Collaborated with **3 professors** in weekly meetings and translated faculty feedback into a shared, topic-organized development task list.

Oak Time Inc. Jan. 2025 – Aug. 2025
Freelance Web Developer Toronto, ON

- Designed and delivered Lisa Staging, a responsive website showcasing a local home-staging company's services and project portfolio.
- Rebuilt the multi-page static site as a **single-page application**, replacing full-page navigation with client-side transitions.

University of Toronto May 2024 – Jan. 2025
Teaching Assistant — CSCC01, CSCC63, ECE444 Toronto, ON

- Taught classes of approximately **30 students** across **3 courses**, covering algorithms, data structures, computational complexity, and software engineering.
- Mentored **5 full-stack React projects** using Scrum, guiding students in Git workflows, databases, CI/CD, and collaborative implementation.

Windows Debugger MCP

2026

Python, FastMCP, DbgEng COM API, Windows Debugging

- Built a **FastMCP server integrating the DbgEng COM API** to expose dump analysis and debugger-session management through Model Context Protocol tools.
- Implemented asynchronous debugger event handling and kernel-target attachment, with safe detach, resume, and break controls for managing the debugging session lifecycle.

S.W.I.M. — ESP32 Interactive LED Display

2024

C++, ESP32-WROOM, Arduino, FastLED, Wi-Fi, HTTP

- Developed ESP32 firmware driving **72 WS2812 LEDs** to render text and bitmap images, using analog input to advance or reverse the display sequence.
- Built an on-device **Wi-Fi HTTP control interface** for text, color gradients, scaling, and display modes, enabling browser-based configuration without reflashing firmware.

Wellness Journaling Mobile App

React Native, TypeScript, Expo, Supabase, PostgreSQL

- Built a React Native app combining journaling, mood tracking, and AI chat; used per-user AsyncStorage and Context API so saved content remains accessible offline.
- Implemented **WebSocket-streamed LLM responses** and a Supabase/PostgreSQL backend with authentication, row-level security, local-to-cloud synchronization, and fallback logic.
- Added daily push notifications with deep links, mood-trend charts, streak tracking, and authentication and tab navigation with Expo Router.

Toronto Event Discovery Map

Node.js, PostgreSQL, Redis, Docker Swarm, DigitalOcean, Google Maps API

- Built a map-based Toronto event discovery application with a **Node.js REST API, PostgreSQL geospatial indexing, and Redis caching** for event retrieval and location-based search.
- Automated ingestion from Toronto's event calendar APIs and deployment to DigitalOcean through **GitHub Actions and Docker Swarm**, with multi-replica services.
- Implemented scheduled database backups to DigitalOcean Spaces, log rotation, and restoration scripts to support recovery of the hosted application's data.
- Integrated Google Maps with location search, Places autocomplete, user geolocation, event bookmarking, and event-management interactions.

Pintos Operating System

2023

C, x86 Assembly, GCC, GDB, QEMU, Docker

- Led a **3-person team** extending Pintos across **4 OS subsystems**: threading, user programs, virtual memory, and file systems.
- Implemented scheduling and system calls as part of a team solution covering priority donation, multilevel feedback queues, demand paging, swap management, and inode-based file-system caching.

World-is-a-library — Novel Publishing Platform

Next.js, PostgreSQL, Prisma, Tailwind CSS, better-auth, Resend, Lexical

- Independently developed a full-stack publishing platform with Next.js, PostgreSQL, and Prisma, integrating cloud storage and database hosting.
- Implemented authentication and authorization with better-auth sessions, cookie validation, Resend email verification, and middleware access controls for protected routes and resources.
- Built book and series search, chapter navigation, profile statistics, and author dashboards for managing books, series, and chapters with image uploads and a Lexical rich-text editor.
- Developed responsive Tailwind CSS layouts and React Context state management for view switching and interactive search filtering.

ADDITIONAL CERTIFICATION

Transport Canada — RPA Pilot Certificate

Oct. 2026

Advanced Operations with Flight Reviewer Rating