HONGYUAN LIU

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SUMMARY

A passionate Computer Science and Data Science graduate from the University of Toronto. Expertise in AI development, including LLM integration, fine-tuning, and prompt engineering. Skilled in full-stack mobile/web development and team leadership. Actively contributing to 10+ projects, over 1500 Github contributions. Learn more at liustev6.ca

EDUCATION

Bachelor of Science 2020–2025
University of Toronto, Toronto, ON

- Double Specialist in Data Science and Computer Science
- Named as Dean's List Scholar for the 2021, 2022, 2023 academic year
- Cumulative GPA of 3.91

TECHNICAL SKILLS

- **Languages** – Java, Python, Dart, SQL, C, C++, Swift, R, JavaScript, TypeScript, Swift, R, HTML, CSS
- **AI Development** – HuggingFace, Transformers, PyTorch, TensorFlow, Numpy, Prompting, LoRA Fine-tuning
- **Web Development** – HTML, CSS, React, NextJS, JavaScript, TypeScript
- **Mobile App Development** – Flutter, Dart, Swift, Kotlin, React Native, Xcode
- **Backend Development** – Firebase, NodeJS, Django, AWS, SQL, FastAPI
- **Environment** – Git, Docker, Linux, Debian, Proxmox, Cloudflare, DNS

STARTUP EXPERIENCE

FOUNDER AND TEAM LEADER – DEMO HERE
Campus Eats | Toronto, ON | May 2023 – Sep 2024

- Founded and **led a 15+ member team** across technology, business to build Campus Eats, a startup revolutionizing the campus dining by introducing 5+ new dining options at 30% lower costs for students.
- Accepted into the competitive 16-week **UofT Hatchery Program**, conducting market research over 50 restaurants and 500 students to develop a comprehensive business plan and cash flow analysis.
- Recognized and partnered with UofT courses **CSC494** and **ENT391**.
- Delivered high-impact presentations, including the Hatchery Dominant Pitch and the Hult Prize Pitch, showcasing Campus Eats' value proposition, and attracting **6 investors with $14k funds**.
- Developed and maintained a robust codebase with over 30,000 lines across multiple products, including a cross-platform app using **Flutter**, a company landing website, an admin dashboard using **Next.js** and **TypeScript**, and a unified backend using **Firebase**.

FOUNDING FULL-STACK ENGINEER – WEBSITE
LockIn (aka. aSocial Inc) | Toronto, ON | Jan 2024 - Current

- Co-founded, developed, and **launched** the LockIn IOS app on the **App Store**, reaching **5,000+ downloads** and **ranking #60** in productivity. Designed to reward students for reducing phone usage, resulting in an average 30% decrease in phone usage time.
- Led and supported a team of 5 developers across web and mobile. Integrated IOS Screen Time APIs in **Swift**, improved UI with **Flutter**, and maintained a 5-star-rating on the App Store.

INDUSTRY EXPERIENCE

CLOUD AND MOBILE APP DEVELOPER CO-OP
Johnson Controls | Concord, ON | May 2023 – June 2024

- Developed a **Full-stack IOS/Android** home security and smart device management app using **Flutter** with **Dart**.
- Designed a **Firestore database** with a robust schema of 10+ collections, optimized query efficiency by at least 30%.
- Independently built a scalable backend using **Firebase Cloud Functions** written in **TypeScript**, adhering to clean architecture principles to ensure code readability and expandability.
- Developed **RESTful APIs** to enable communication between app and Google Matter, Home Assistant, etc. Integrated real-time geolocation services using Google Cloud Platform API.
- Designed and implemented 20+ modern, user-centered interfaces using **Figma**.

RESEARCH EXPERIENCE

RESEARCHER – JINESIS LAB

University of Toronto | Prof. Zhijing Jin | Toronto, ON | Sep 2024 - Current

- Designed and developed an **LLM-powered** mentorship chatbot to support students in research planning, incorporating insights from 50+ PhD students and professors through the ACL Year-Round Mentorship Channel.
- Designed a full video-to-chatbot pipeline, leveraging **LLM summarizers** and transcript-based **RAG** to extract and ground knowledge from educational videos; evaluated models like **Qwen** and **LLaMA** using both **supervised fine-tuning** and prompting-based approaches.
- Designed and tested LLM-as-a-Judge framework to denoise subjective human preference (SHP) datasets, improving **alignment** and enhancing reward model training quality for future use.

RESEARCH ASSISTANT – FAR DATA LAB

University of Toronto | Prof. Qizhen Zhang | Toronto, ON | Sep 2023 – Jan 2024

- Conducted paper research, analyzing and summarizing 20+ research papers on **hardware-accelerated DBMS** from the leading conferences (SIGMOD, VLDB) to inform optimization strategies for query performance.
- Designed and deployed three 5-node PrestoDB clusters on various **FPGA** and **GPU** configurations, identifying an optimized GPU-only setup that achieved 20% faster query performance.
- Ran **TPC-H benchmarks** on clusters, adjusting hardware configurations and capacity to ensure all queries completed over a 12+ hours runtime across all setups.

SELECTED PERSONAL PROJECTS

PERSONAL WEBSITE AND HOME SERVER DEVELOPMENT – <u>VIEW WEBSITE</u>

- Developed and maintain a personal portfolio website using **React** to showcase my projects, complete with video demos and interactive elements for an engaging user experience.
- Assembled and configured **a two-node Proxmox** home server, equipped with 48 CPU cores, 128GB RAM, 9TB SSD, ad dual RTX 4060 Ti GPUs (16GB VRAM each) for AI development and virtualization.
- Hosted essential services including a **Django** backend for project listing on my website, a **FastAPI** backend for AISim game, a customized personal storage, and Windows VM with hardware-passthrough for remote gaming.

STEVEN AI – A CHATBOT ANSWERING ALL QUESTIONS ABOUT ME – <u>ASK NOW</u>

- Developed an AI chatbot capable of answering questions about my background by **fine-tuning** the **Llama 3.2** model with 1,000 Q&A pairs. Optimized resource usage with Unsloth for 2x speed and 50% less VRAM, and a **LoRa** adapter with rank-16 for efficient performance.

AISIM – AI SIMULATION GAME – LAUNCHING SOON

- Designed and developed a 7-player AI social deduction game for research on LLM behavior, featuring character dialogue, memory tracking, and goal-driven reasoning. Connected to a 2D **Godot** frontend**,** rendering real-time character portraits, conversations, and group chat scenes in a pixel-style interface.
- Built a modular **FastAPI** + **SQLite** backend to simulate rounds, persist conversations, and player states.
- Integrated multiple LLMs, **Llama** for fast character conversations simulation, **Deepseek** for memory and strategy updates. Used role-specific system prompts and contextual memory logs to generate personalized dialogues and reasoning.

FOOD-101 22-CLASS IMAGE CLASSIFICATION – <u>CLASSIFY NOW</u>

- Developed a food classification system using the Food-101 dataset. Employed VGG, Inception, and ResNet models with transfer learning, and hyperparameter tuning to accurately classify 22 food categories.

LOW-LEVEL OS LIBARIES

- Built a user-level thread library in **C**, implementing context switching, and basic scheduling (e.g., round-robin)
- Developed a lightweight memory management system, supporting paging, page replacement algorithms (e.g., FIFO, LRU), and simulated swapping between RAM and disk.
- Implemented a simple file system, handling file creation, deletion, and reading/writing, including metadata management (e.g., inodes, file descriptors) and basic directory structure.
- Implemented a basic network library in **C++**, featuring packet forwarding, routing/ARP tables, etc.