Amelia Zhang

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EDUCATION

University of Toronto (St. George Campus), Toronto, ON — Sept 2023 – May 2028

Bachelor of Applied Science in Computer Engineering + PEY Co-op
Minor: Artificial Intelligence
Relevant Courses: Deep Learning, Machine Learning, Data Structures & Algorithms, Software Engineering

TECHNICAL SKILLS

Programming: Python(PyTorch, HuggingFace), C/C++, JavaScript/TypeScript, Java, Verilog, Assembly

ML & AI: LLM, RAG, multimodal fusion, prompt engineering, lightweight post-training alignment

Infrastructure: Data pipeline, model orchestration, Docker, Git, CI/CD

Frontend & Backend: React, Next.js, FastAPI, Node.js, SQL, Supabase, Linux, Vercel, Cloudflare

Hardware: FPGA, LTSpice, Quartus, ModelSim

EXPERIENCE

Machine Learning Project Lead - AURA (AI-Powered Conversational Agent) — Aug 2025 - Present
Univeristy of Toronto Machine Intelligence Team

- Lead a team of 22 building **AURA**, a multimodal personality-adaptive conversational agent for mental health support, presented at **MIT IEEE Undergraduate Research Technology Conference**, with a full research submission in preparation.
- Built a multimodal emotion & personality recognition pipeline (RoBERTa + HuBERT/WavLM) achieving **80%** accuracy across text–audio signals. Designed the generation subsystem, combining personality-conditioned prompting with lightweight **RLAIF-style alignment** to produce safe, empathetic responses.
- Oversaw model training, evaluation, and deployment pipeline while mentoring subteams in MLOps and backend integration.

Software Developer - Ask-TapeB (Full-Stack Wellness Assistant) — Jun 2025 – Aug 2025
Personal Project

- Designed and developed a **full-stack AI application** integrating a chatbot, mood tracker, and analytics dashboard to support user emotional well-being.
- Built backend using **FastAPI, Supabase**, and **Cloudflare**, with real-time emotion inference powered by lightweight NLP and sentiment-analysis models.
- Implemented a responsive web interface with **Next.js** and **Tailwind CSS**, deployed on Vercel, ensuring smooth user experience and reliable data visualization.

Project Manager, The Traveller (Interactive City Map Application) — Jan 2025 – Apr 2025
Univeristy of Toronto

- Built an interactive C++ mapping application with real-time rendering using EZGL and GTK, integrating a responsive GUI with search functionality.
- Implemented A* algorithm and Ant Colony Optimization to solve the traveling courier problem for 200+ stops.
- Placed 6th in the contest, finding optimal routes in under 50 seconds.

PUBLICATION

Monkeypox Case Prediction with Machine Learning, San Francisco, USA — Jun 2022 - Nov 2022
2023 International Conference on Computer, Machine Learning and Artificial Intelligence
Authors: Xianghan Zhang(My legal name), Anqi Wang, Dongxiao Li, Wei Shen

- Built a time-series forecasting model using Python and Facebook Prophet to predict Monkeypox infection trends.
- Co-authored and published a paper indexed by Google Scholar, CPC, and Crossref databases.