Yongkang Cheng

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EDUCATION

University of Toronto (St. George), Toronto, ON

Sep 2023 – May 2028 (expected)

BASc in Computer Engineering + PEY Co-op (cGPA: 3.87/4.0, Score: 88.6/100) Relevant: Applied Deep Learning Fundamentals, Software Design & Communication

TECHNICAL SKILLS

- Languages: Python, C/C++, JavaScript, Node.js, Java
- Backend/Web: FastAPI, Flask, React, REST, Docker, Nginx, SQL/NoSQL
- ML/Data: PyTorch, NumPy, Pandas; basic LangChain
- Tools: Linux, Git, SSH, Firebase, Raspberry Pi

EXPERIENCES

Frontend Manager, Voluntrack.org

 $May\ 2024-Present$

Toronto, ON

- Volunteer, Non-profit | React, Firebase
- Led a 4-person team to redesign the React frontend; improved task completion and engagement by 20%.
- Built fuzzy search and filtering over Firebase data; streamlined workflows and simplified onboarding.

Research Assistant, Ultra-Wideband Receiver Design

May 2025 - Jul 2025

Research Intern, X-Lab, University of Toronto

Toronto, ON

- Verified hybrid 2PPM + 8PSK TX chip pre tape-out; built Python/Simulink pipelines for 2ns symbol sync and carrier recovery under discontinuous 4GHz.
- Built pulse-position detection and K-means cluster calibration to mitigate cross-modulation 100ps timing shifts.
- Achieved zero-BER demodulation of all signals under $\geq 13\,\mathrm{dB}$ AWGN SNR and $\pi/16$ phase jitter.

PROJECTS

Handwritten Text Recognition (CRNN)

Jun 2024 – Aug 2024

Course Project | PyTorch, Python

- \bullet Trained a CRNN achieving 87% word- and 95% char-level accuracy on 10k+ samples.
- Implemented connected-component word segmentation; 1024 x 1024 inference in <4s on CPU.

City Mapify - Interactive Mapping Engine

Jan 2025 – Apr 2025

Course Project | C++, OpenStreetMap

- Built C++ mapping engine parsing **2GB** OpenStreetMap data with QuadTree indexing at 60 FPS.
- Implemented A*/Dijkstra pathfinding and delivery optimization (Simulated Annealing, ACO) for 250+ packages.

Wildfire Disaster Communication Platform

Jan 2025

Hackathon | Python, Streamlit, Flask

- Built real-time incident map (Folium) and two-way messaging with photo uploads and roles.
- Top-8 finalist at UTEK; automated severity scoring for resource allocation.

Self-Hosted Chatbot with Diary DB

Oct 2024

Personal Project | React, FastAPI, Nginx, NoSQL

- Deployed full-stack chatbot replicating personal style; TLS, DDNS, and reverse proxy for secure access.
- Integrated OpenAI API and vector search for context-aware Q&A over personal diaries.

AWARDS

• University of Toronto Excellence Award (UTEA)

Apr 2025

\$7,500 scholarship for 6 students among 2nd to 4th ECE for research potential.

• ECE Awards Sep 2024

Awarded to top 30 students in the first-year ECE program out of 300+ students.