

# 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

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## 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
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## EXPERIENCES

**Frontend Manager, Voluntrack.org** May 2024 – Present  
*Volunteer, Non-profit | React, Firebase* Toronto, ON

- 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  $\geq 13$  dB AWGN SNR and  $\pi/16$  phase jitter.

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## PROJECTS

**Handwritten Text Recognition (CRNN)** Jun 2024 – Aug 2024  
*Course Project | PyTorch, Python*

- 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.

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## 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.