

# YONGKANG CHENG

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## EDUCATION

**University of Toronto (St. George Campus), Toronto, ON** Sep 2023 - May 2028 (expected)  
Bachelor of Applied Science in Computer Engineering + PEY Co-op  
GPA: 3.92/4.0 (Top 30 among first-year ECE students)  
Relevant Courses: Applied Fundamentals of Deep Learning, Software Design and Communication

## TECHNICAL SKILLS

- **Programming:** Python, C/C++, JavaScript/TypeScript, Java, Verilog, Assembly
- **Frameworks:** PyTorch, React, FastAPI
- **Tools:** Linux, SQL/NoSQL, Nginx, Docker, Git, SSH
- **Hardware:** Arduino, Raspberry Pi, FPGA, LTSpice, Quartus, ModelSim
- **Data and Visualization:** NumPy, Pandas, Matplotlib

## EXPERIENCE

**Frontend Manager, Voluntrack.org (Non-Profit)** May 2024 - Present

- Coordinated a 4-person frontend team using React.js to renew the web interface.
- Conducted biweekly stand-ups, assigned tasks in GitHub Projects, and streamlined communication in the team.
- Improved user engagement by approximately 20% through enhanced app layouts and intuitive user flows.
- Utilized Figma for UI design and MS Project to keep track of tasks and deadlines.

**Project Lead, Handwritten Text Recognition (University of Toronto)** Jun 2024 - Aug 2024

- Led a remote team to develop a PyTorch-based CRNN model for handwritten text recognition.
- Achieved 87% word-level and 95% character-level accuracy on the test set with 10,000+ samples.
- Deployed connected-pixel algorithms for word positioning and word segmentation, processing 1024×1024 images in less than 4 seconds.

**Project Manager, Wellness Room Expansion (University of Toronto)** Jan 2024 - Apr 2024

- Led a cross-functional team of 6 students to redesign and prototype a wellness room, endorsed by the client.
- Streamlined task management using Microsoft Project, tracking over 100+ tasks to completion on schedule.
- Incorporating client feedback, generated 100+ initial ideas and finalized 3 proposed designs.
- Designed and visualized proposals using Rhino and Blender 3D models, reducing client feedback iterations and improving decision-making efficiency.
- Conducted research on noise isolation, light intensity, and light temperature to deliver optimal design solutions.

## PROJECTS

**Diary with AI Feedback** Sep 2023 - On Going

- Designed and implemented a journaling program integrated with OpenAI's GPT API, generating insightful feedback and suggestions for over 570 diary entries.
- Developed a diary sorting algorithm to retrieve contextually similar past entries, enhancing user experience and maintaining API costs below 0.2\$ per call.
- Optimized data-sorting pipelines and API request processes, reducing average diary load time from 10s to 0.5s, enabling seamless daily use.

**Verilog Pac-Man Game (University of Toronto)** Nov 2024

- Created a Pac-Man-style FPGA game using Verilog supporting PS/2 keyboard input and VGA output.
- Debugged signal synchronization issues and state-machine logic, boosting overall stability and playability.
- Automated image conversion using Python + OpenCV for seamless integration of game graphics.
- Prototyped the game using Pygame, ensuring accurate emulation of the FPGA version for agile development.

**WillPower | Time Management & Monitoring** Jan 2025 - Present

- Built a modular system with Raspberry Pi capturing images and sending them to a Windows host for local storage and analysis.

- Deployed Nginx, FastAPI, and libcurl for data transfer, facilitating real-time user monitoring and minimal downtime.
- Currently exploring Azure Face APIs and transfer learning for user-behavior analysis on a dataset of over 20,000 images.

#### **Self-Clone Chatbot with Diary Database**

Oct 2024 - Present

- Built a self-hosted AI-powered chatbot that replicates personal interaction styles, deployed using React.js, FastAPI, and Nginx on a Raspberry Pi.
- Integrated OpenAI API and a NoSQL database for real-time Q&A functionality with personal diary data.
- Ensured secure and seamless remote access by implementing TLS encryption, DDNS, and optimizing for daily traffic from personal networks.

#### **RainBirthdayGift – AI-Driven Chatbot**

April 2024

- Built a GPT-4-powered chatbot in 3 days using C#, .NET, and WPF framework as a gift for a friend.
- Integrated OpenAI API to enable real-time conversations, designed with a dynamic WPF interface using XAML.
- Enhanced experience by customizing UI with role-based colors and responsive message display.
- Implemented efficient asynchronous API calls to ensure smooth user interactions.

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## **AWARDS & ACCOMPLISHMENTS**

#### **ECE Awards & Dean's List Scholar (UofT)**

Sep 2024

- Recognized for outstanding academic performance (GPA 3.92/4.0).

#### **American Computer Science League (ACSL) - Bronze Prize**

Jan 2021

- Placed in top 10% overall, with top-20% scores in the 4th round, after 60 hours of training.