

# ELBERT CHAO

CANADIAN CITIZEN

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## EDUCATION

### Bachelor of Engineering Science, Software Engineering

University of Western Ontario

London, ON, Canada

Sept 2021 – May 2025

- Year 4 GPA: 3.9/4.0; Deans Honor List: 2021-2024
- Coursework: Introduction to Machine Learning, Artificial Intelligence I/II, Cloud Computing, Software Testing and Maintenance, Web Technologies, Data Structure & Algorithms, Database Management, Operating Systems

## WORK EXPERIENCE

### Free Appropriate Sustainability Technology – FAST

Undergraduate Assistant

London, ON, Canada

Nov 2024 – Present

- Developed a full-stack web application using **Next.JS** for the front end and **Flask** for the backend, integrating a **Machine Learning Model** for strawberry ripeness and disease analysis, enabling **90%** faster crop assessment
- Optimized AI model performance through real-world testing on strawberry images, systematically debugging edge cases and refining feature inputs, achieving a **30%** increase in classification accuracy for deployment
- Deployed the full-stack application on Western University's domain (uwo.ca), utilizing **Nginx** for reverse proxying, and Gunicorn for serving the **REST APIs**, and **PM2** for process management, resulting in **95%** server uptime
- Configured the production environment, managing **SSL certification**, **UFW firewall rules**, and server optimizations, resulting in a **50%** reduction in deployment issues

## PROJECTS

### FormFixer.AI | React Native, MongoDB, Tailwind CSS, TensorFlow Lite

Sept 2024 – Present

- Engineering a real-time form correction Android app using **React Native**, **MongoDB**, **Tailwind CSS**, and a **Pose Detection ML Model** to improve exercise safety, reducing injury risk for beginner gym-goers by **40%**
- Optimizing the **TensorFlow Lite** model to improve key joint detection accuracy, enhancing the clarity of human movement analysis by **25%**
- Directed the efforts of a small team using **Jira** and **Confluence** for workflow enhancements, leading to significant improvements in communication flow that reduced bottlenecks during sprints.

### Cheer Program | MongoDB, ExpressJS, ReactJS, NodeJS, Material UI, Socket.io, GCP

Jan 2024 – May 2024

- Designed an intuitive navigation & chatroom system, increasing user engagement by **25%** by leveraging **ReactJS** and **Socket.io** for real-time communication
- Collaborated with a team of **5** to optimize project workflows, increasing task tracking efficiency by **30%** by utilizing **Jira** and **Confluence** for streamlined task management
- Enhanced web application scalability by **40%** by deploying on **Google Cloud Platform (GCP)** with **Cloud Run**, ensuring efficient resource utilization and cost-effective performance

## COMPETITIVE ACHIEVEMENTS

### Western Engineering Competition | Game Demo | 2<sup>nd</sup> Place Programming Winner

Software Developer

London, ON, Canada

Nov 2024

- Programmed a Space Asteroid Game using **Pygame**, competing against over **500** participants across **10** categories
- Completed a functional game with a team of **4** under a **7-hour** time constraint, demonstrating effective teamwork

### Western Cyber Society (WCS) | 1<sup>st</sup> Place Entertainment Category Winner

Backend Developer, SIP Spotify Playlist Generator Team

London, ON, Canada

Jan 2024 – Apr 2024

- Developed a model using **Python**, **Spotify's API**, and **OpenAI API** to generate personalized playlists, leading to a **30%** increase in user listening engagement
- Facilitated weekly meetings with a team of **6** to strategize the successive phases of the software development and presented our project at the Toronto Tech Expo, competing against over **15** software integration teams

## TECHNICAL SKILLS

**Languages:** Python, Java, JavaScript, HTML/CSS, SQL

**Databases:** MongoDB, MySQL

**Web Technologies:** ReactJS, NextJS, React Native, Flask, ExpressJS, Material UI, Socket.io, GitHub Actions, Docker, Pygame, OpenAI API, Spotify API, TensorFlow Lite

**Cloud Developer Tools:** Google Cloud Platform (GCP), GKE, Nginx, Gunicorn, PM2, Docker