

Andrew Wu

✉ andrewwuca@gmail.com | ☎ (647) 451-7652 | 🌐 www.andrewwu.ca | 🌐 andrewwu13 | 🌐 andrew-wu13

Education

McMaster University
B. Eng in Software Engineering

Hamilton, Ontario
May 2029

Experience

McMaster Artificial Intelligence Society
Software Developer

Oct 2025 – present

- Developed a **Next.js** + **FastAPI** web application that performs real-time deepfake detection from user uploads
- Integrated async model serving, batch processing, and GPU-accelerated inference to optimize latency and throughput
- Deployed ML inference pipeline with **Docker** and **Kubernetes**, leveraging **NGNIX load balancing** and **Redis caching** on cloud infrastructure

Google Developer Groups
Open Source Developer

Sept 2025 – present

- Designed a real-time **React** + **Chrome Manifest V3** extension interface enabling natural language web automation
- Integrated **FastAPI** and **WebSocket** communication to display live agent reasoning, task progress, and DOM action traces
- Enhanced UI interaction reliability by **30%** through integrating DOM text parsing with **Tesseract OCR** for element identification across diverse webpage layouts

McMaster Solar Car Project
Full Stack Developer

Sept 2025 – present

- Designed and deployed **LGTM** stack (Loki, Grafana, Tempo, Mimir) to monitor operations and track **OpenTelemetry** metrics and logs through profiled **Docker** containers and integrated with **GitHub Actions CI/CD**
- Implemented robust error handling via **FastAPI** and **Jinja2**, improving platform reliability

McMaster Exoskeleton
Software Developer

Sept 2025 – present

- Developed and integrated an **LSTM**-based gait prediction algorithm with **PyTorch**, achieving **85% accuracy** ($\pm 5^\circ$) in estimating joint angles from IMU sensor data
- Optimized model generalization through diverse training data, allowing adaptation to varied gait patterns, including stair climbing and walking at multiple speeds and stride lengths

Projects

NewKnew

Sept 2025

- Developed GPT-4-powered news platform, delivering concise insights on trending tech articles
- Implemented **Express/Node.js** backend with a **PostgreSQL** database, optimizing query performance and clustering articles via **k-means**, displayed through a responsive **Next.js** frontend for personalized feeds and live topic updates
- Automated data pipeline in **Python** to scrape and preprocess **500+** articles, reducing manual curation time by **90%**

Restaurant Location Optimization

Nov 2024

- Designed a profit-maximization model with **NumPy** using a non-linear cost function and implemented a gradient descent algorithm to converge on optimal restaurant coordinates
- Addressed model limitations by integrating non-Euclidean geometric constraints, increasing accuracy by **70%**

Wilberforce Pendulum Simulation

Feb 2025

- Built a computational physics simulation solving nonlinear differential equations to model pendulum motion
- Designed data visualization pipeline with **Matplotlib**, producing clear insights on oscillatory and rotational dynamics

Skills

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

Technologies/Frameworks: Next.js, React, Node.js, Express.js, PostgreSQL, MySQL, Git, Postman, Docker, Kubernetes

Libraries: FastAPI, scikit-learn, Matplotlib, NumPy, Pandas