Andrew Wu

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Education

McMaster University *Hamilton, Ontario*
B. Eng in Software Engineering *May 2029*

- 4.0 GPA

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
- Enchanced 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** ($\pm 5°$) in estimating joint angles from IMU sensor data
- Optimized model generalization through diverse training data, allowing adaptation to varied gait patterns.

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, Agile Development, Visual Studio, VMware, Selenium

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