

Andrew Wu

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Education

McMaster University

B. Eng in Software Engineering

Hamilton, Ontario

May 2029

- 4.0 GPA

Experience

McMaster Artificial Intelligence Society | Software Developer

Oct 2025 – present

- Built a weighted hybrid FFT-ViT-CNN deepfake detection model, integrated into a Next.js + FastAPI web application, achieving **85% test accuracy**
- 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 an AI-powered browser automation agent using LangGraph and LLM-based reasoning to orchestrate multi-step reasoning and tool use for dynamic webpage interaction
- Integrated Playwright to execute DOM actions into DOM-state embedding pipeline, increasing UI-interaction reliability by 30% across non-responsive webpages and SPA's
- Developed real-time reasoning logging with FastAPI and WebSockets for debugging and interpretability of agent actions

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.

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

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, SQL, Java, JavaScript, TypeScript, HTML/CSS

Technologies/Frameworks: PyTorch, HuggingFace, LangGraph, PostgreSQL, MySQL, Redis, Docker, Kubernetes, NGNIX, Grafana, Prometheus, WebSockets, Git, Agile Development

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