Andrew Wu

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Education

McMaster University, in Engineering – Hamilton, Ontario — Sept 2025 – present

St. Robert Catholic High School, in IB Diploma — Sept 2021 – June 2025
GPA: 4.0 (97%)

Experience

Media Executive, Student Athletic Council, St. Robert CHS — Sept 2021 – June 2025

Camp Counsellor, Muskoka Woods Summer Camp — Sept 2023 – Sept 2023

Center Assistant, Kumon Institute Education — Aug 2021 – May 2022

Projects

AI-Powered News Summarization Platform — Sept 2025

- Built a full-stack web application that automatically summarizes and curates news articles using LLM-based NLP pipelines.
- Designed lazy-loading article feed with React, improving load performance and user experience for continuous scrolling.
- Integrated SQL-backed storage system to manage articles and metadata, enabling efficient retrieval and filtering.
- Delivered production-ready features like refresh functionality, dark mode toggle, and scalable backend APIs, demonstrating end-to-end software development skills.

Optimization via Gradient Descent — Nov 2024

- Implemented a scalable gradient descent algorithm to minimize cost functions, achieving optimized solutions for regression models and facility location problems
- Reduced computation time by applying vectorized operations in NumPy, demonstrating efficiency improvements in optimization workflows.

Dynamic System Simulation (Wilberforce Pendulum) — Feb 2025

- Built a computational physics simulation solving nonlinear differential equations to model pendulum motion.
- Designed data visualization pipeline with Matplotlib, producing clear, interpretable insights on oscillatory and rotational dynamics.
- Showcased ability to apply numerical methods and mathematical modeling to real-world physics problems.

Research Project: Biomechanical Landing Optimization — Sept 2023

- Conducted research analyzing how variations in human landing techniques affect stress on musculoskeletal systems.
- Applied statistical and computational methods to interpret results; authored a research paper synthesizing findings with potential applications in sports science and injury prevention.

Skills

Languages: Python, JavaScript, TypeScript, Java, C

Technologies/Frameworks: React, HTML/CSS, Git, MySQL, PostgreSQL, Node.js, Express

Libraries: Pandas, NumPy, Matplotlib, scikit-learn

Certifications and Achievements

- Canadian Youth Physicist's Tournament Gold Medal | IYPT

- Certified B1 French Speaker | Diplôme D’études En Langue Française
- Certificate of Distinction | CEMC Pascal, Euclid, CSMC
- 4x Honour Roll | IB Diploma Graduate