

He Ming (Andy) Liu

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EDUCATION

University of Toronto

Sep 2024 - Apr 2029 (Expected)

Bachelor of Applied Science in Engineering Science + PEY Co-Op

- Relevant Coursework: Electric Circuits, Computer Systems (SystemVerilog, Assembly), Deep Learning (PyTorch), ODEs

University of Waterloo

Sep 2023 - Aug 2024

Bachelor of Math in Mathematics/Financial Analysis and Risk Management

- Relevant Coursework: Elementary Algorithm Design & Data Abstraction (C), Tools & Techniques for Software Dev. (CLI, Scripting, Git), Designing Functional Programs (Racket), Honours Linear Algebra, Public Speaking

SKILLS

Programming Languages: Python (PyTorch), C, C++, Java, MATLAB, RISC-V Assembly, JavaScript, Racket

Engineering Tools: CAD, Git & GitHub, HTML & CSS, LaTeX, Microsoft Office (Excel), CLI, Scripting

Embedded Systems: Arduino, ESP32, MicroPython, CircuitPython, SystemVerilog, Altium, KiCad

PROJECTS

Theme Prize Winner - Resonant Evil - Audio-Based Maze Escape Arcade Game

Feb 2025

- Won the Video Games Theme Prize at MakeUofT 2025 (Canada's largest makeathon), outperforming 300+ participants.
- Developed an immersive audio-driven **Arduino** arcade machine game to increase accessibility for the visually impaired.
- Implemented dynamic audio and haptic feedback that guided player navigation and heightened tension.

First Place Winner - Wannabe WALL-E - Autonomous Vehicle Challenge

Feb 2025

- Won 1st place in the UTRAHack 2025 Autonomous Vehicle Challenge, outperforming 250+ participants.
- Developed an **Arduino** autonomous robot that used ultrasonic and IR sensors to navigate through a series.
- Engineered a corrective turning algorithm to compensate for a malfunctioning motor driver, preventing critical failure.

Theme Prize Winner - Silent Night - IoT Smart Pillow

Feb 2024

- Won the Smart Home Tech Theme Prize at MakeUofT 2024, outperforming 300+ participants.
- Designed an IoT smart pillow to monitor sleep conditions and correct posture using an **ESP32**.
- Built a posture-adjustment system to improve sleep ergonomics through automated micro-corrections.

EXPERIENCES

IEEE - University of Toronto Branch

Toronto, ON

Project Lead

Aug 2025 - Present

- Devised the Smart Cane project pipeline, linking object detection and sensor readings to dynamic haptic feedback.
- Coordinated cross-function contributions on the Smart Cane Project, ensuring steady progress.
- Co-hosted a **Git** workshop for 100+ hackathon participants, introducing them to VCS fundamentals.
- Co-hosted an **Altium** workshop for 30+ participants, introducing them to elementary PCB schematic design.

CAROBOT Learning and Research Organization

Markham, ON

Engineering Trainee

May 2025 - Aug 2025

- Designed a youth ESP32 robotics course using simplified programming through BIPES (block-based) and MicroPython.
- Contributed to making BIPES accessible offline through a browser for those without internet or download permissions.

UW Financial Analysis & Risk Management Student Association (FARMSA)

Waterloo, ON

Internal Analyst + IT Analyst

Sep 2023 - Apr 2024

- Developed features for the FARMSA website using JavaScript, HTML, and CSS.
- Organized networking events and technical workshops for 30+ students.