

Alan Yin

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EDUCATION

Cornell University

B.S. in Mechanical Engineering

Ithaca, NY

Aug. 2026 – May 2030

Upper Canada College

IB Diploma; Higher Level Philosophy Award; FTC Robotics; Varsity Badminton & Swimming

Toronto, ON

Sept. 2022 – May 2026

EXPERIENCE

Tytle Electrical Industries Ltd.

Engineering Intern

June 2026 – Aug. 2026

Markham, ON

- Built and deployed a desktop app to process SolidWorks and STEP parts, replacing ~5 hrs weekly of manual review
- Developed geometry & material analysis, similarity scoring, 3D visualization, and Excel pipeline through the SolidWorks API
- Modeled and revised ~50 SolidWorks parts/assemblies from engineering drawings based on clients' needs and orders

Toronto Metropolitan University – Dept. of Aerospace Engineering

Research Intern

Sept. 2024 – May 2025

Toronto, ON

- Implemented and tested a NARX neural-network control system for sending torque commands using MATLAB and Python
- Designed, CAD-modeled, and built a two-stage robotic actuator to test generated torque profiles and validate motion accuracy
- Co-authored a peer-reviewed paper published by Springer and presented solo at IEEE IEMTRONICS 2025

Dr Robot Inc.

Mechanical Design Intern

June 2024 – Aug. 2024

Richmond Hill, ON

- CAD-modeled, developed, and deployed a rocker-bogie and spring suspension system prototype for a swerve-drive chassis
- Simulated various terrain conditions, vehicle physics, and autonomous navigation in Unity using swerve-drive odometry
- Wired circuitry and integrated a camera and NVIDIA Jetson Nano for autonomous navigation and computer vision

LEADERSHIP & SERVICE

UCC-BSS FIRST Tech Challenge Robotics Program

Founder, Team Captain & Coach

Sept. 2024 – May 2026

Toronto, ON

- Founded and led a 30-member robotics program spanning two independent high schools
- Raised \$10K+ in sponsorships for equipment, manufacturing, and competition expenses
- Taught SolidWorks, Java, and physical assembly; coached team from no experience to 4th provincially and an international FIRST Canada Cup qualification

STEAM Program for Youths

Captain & Volunteer

Sept. 2023 – May 2026

Toronto, ON

- Designed and led multiple workshops for 20+ elementary and middle-school students on OnShape, Java, and FIRST Lego League robotics
- Organized and taught a 50+ person provincial high school AI conference on core machine-learning concepts and tools (PyTorch, scikit-learn, pandas)

PROJECTS

Autonomous Warehouse Drone | SolidWorks, Python, Raspberry Pi, OpenCV, ArduPilot

June 2026 – Present

- Designed, CAD-modeled, and built a custom drone with flight controller & Raspberry Pi UART communication
- Integrated object detection and OCR to detect text during flight in otherwise inaccessible locations with OpenCV
- Implemented AprilTag tracking for indoor localization and target following

Autoimmune Disease Food Scanner App | PyTorch, pandas, Hugging Face

Mar. 2025 – June 2025

- Prototyped vision-transformer and LLM pipeline that flags restricted foods for autoimmune patients from camera feed
- Pitched the product at the World Affairs Conference 2025 & SPRINT business competition, earning \$3K in funding

AWARDS & PUBLICATIONS

FIRST Tech Challenge World Championship

Finalist Alliance (2024) out of 336 teams

CANAI AI Challenge

Gold Award among 100+ teams across Canada (2025)

IEEE IEMTRONICS 2025

Best Presenter Award

\$3K SPRINT Provincial Business Grant

Grant Recipient

“NARX Neural Network-Based Control of Robotic Arm,” Springer *Lecture Notes in Electrical Engineering*, Vol. 1468 (2025)

TECHNICAL SKILLS

CAD & Design: SolidWorks (CSWA), GD&T, 3D Printing, Laser Cutting

Programming: Python, C#, Java, MATLAB, C++

Tools & Libraries: SolidWorks API, OpenCV, Hugging Face, ArduPilot, PyTorch, scikit-learn, pandas, Unity, Git, Excel