Aaron Huang

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Education

University of Toronto - St. George Campus Toronto, ON
BASc. in Engineering Science — Robotics Engineering (Specialization) *Sep 2026 — June 2031*

Skills

- Software: Java, TypeScript, Git, Python, Kotlin, SQL
- Robotics: Computer Vision, Closed Loop Control
- Design: Onshape, Fusion 360 CAM, SolidWorks
- Web: React, Next.js, Vercel

Experience

Chief Engineer and Advisor, FRC 7520 Jan 2021 — June 2026
FIRST Robotics Competition *Toronto, ON*

- Built and tuned closed-loop control systems for drivetrain and manipulation subsystems using encoders, IMUs, and motor controllers.
- Iterated on gains, sensor placement, and actuator selection to reduce drift, latency, and instability during real-world operation.
- Worked across mechanical, electrical, and software teams to translate performance goals into robust, field-ready motion.
- Diagnosed hardware issues through bench validation and system integration to improve repeatability in autonomous and teleoperated tasks.
- Led a 60+ member organization across 8 subteams and drove execution that resulted in the team's first two consecutive World Championship appearances.
- Robots: 2024 2025 2026 Offseason

Captain and Founder, VRC 95500A Sep 2024 — June 2026
VEX Robotics, York Mills CI *Toronto, ON*

- Founded the school's VEX team and built its design, build, outreach, and event-operations workflow from scratch
- Grew the team to 30 members and managed over $6,000 in funding from the school and sponsors

Projects

Inverted Pendulum GitHub, Video

- Implemented a control system for a cart inverted pendulum in real life
- Capable of staying upright for 3+ hours using a LQR controller running on a Raspberry Pi Pico

erLay GitHub, Video

- Developed an ultra-portable CoreXY 3D printer that fits in a suitcase, enabling rapid on-site part fabrication during competitions
- Engineered a rigid, rod-based frame to speed teardown and setup in competition environments

AstralCNC GitHub

- Designed a Raspberry Pi Pico + GRBL-HAL CNC controller board to refurbish a 25+ year-old school router into a usable machine
- Implemented hardware-level emergency stop/reset and configurable 3.3V/5V I/O to support up to 8 stepper drivers

UTRA Hacks 2025 GitHub

- Developed "Baylee", a mobile health assistant robot that won Best Use of Generative AI at UTRA Hacks 2025
- Implemented emotion recognition and practical health assistance by combining facial recognition, product dispensing, and tool-calling workflows connected to an LLM backend
- Engineered an autonomous robot with self-moving cabinets for medicine, tissues, and sanitation