

Ryan Li

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TECHNICAL SKILLS

Languages: C++, Python | **Software:** SolidWorks, AutoCAD, Git, Flask, Excel

Hardware: 3D Printing, Raspberry Pi, Arduino, ESP32, Soldering, Manual machining, GD&T

EXPERIENCE

Team Member — Suspension

Sep 2025 – Present

University of Waterloo Formula Electric

Waterloo, ON

- Manufactured **20+** parts of suspension hardware (suspension plate, spacers, tubes, plugs) using **manual mills and lathes** while following safe shop practices.
- Interpreted technical drawings (dimensions, fits/tolerances) to meet tight tolerances up to **± 0.05 mm**, perform in-process checks and final inspection.

Student Mechanic

Sep 2023 – Jun 2025

High School Automotive Shop

Calgary, AB

- Performed diagnostics and repairs including brake service and fluid system work while following safety procedures and checklists.
- Participated in mechanical tasks (e.g., engine removal) using proper tools, fastener handling, referencing **manufacturer torque specifications**.

PROJECTS

🏠 HomeHUB — Distributed IoT Sensor Network (Raspberry Pi + ESP32)

- Built a distributed ESP32 sensor network transmitting temperature and humidity over Wi-Fi to a Raspberry Pi hub; validated readings within **$\pm 1^\circ\text{C}$** and **$\pm 5\%\text{RH}$** of a reference device.
- Developed a **Python/Flask** dashboard with a REST-style API (GET/POST endpoints) for sensor data ingestion and retrieval, with JSON logging storing **1000+ data points/hour**.
- Designed **SolidWorks 3D-printed enclosures** for ESP32 sensor nodes and the Raspberry Pi hub through **3 design iterations**.

VEX IQ Robot Printer

- Built a **VEX IQ** drawing robot using **VEX IQ structural components** and **custom 3D-printed parts** (rack elements, pen mount) to position a pen over paper.
- Verified consistent path repeatability across **20+ consecutive automated trials**.
- Developed **C++ (VEXcode IQ)** control code using **5+ input types** (controller + sensors) for manual control and automated drawing routines.

LEADERSHIP & VOLUNTEERING

ECSSEN Career School — Volunteer Assistant Coordinator

Jun 2023 – Present

- Coordinated volunteers and event operations for **100+ attendee** programs; handled scheduling, on-site execution, and day-of issue resolution.
- Secured **\$2.5K+** in sponsorships through outreach and partner follow-ups; tracked commitments and deliverables in **Excel**.
- Supported distribution of **2000+ kg** of food by organizing sorting/handout workflow and maintaining accurate counts.

EDUCATION

BASc, Mechatronics Engineering — University of Waterloo

Sep 2025 – Present

GPA: 92% (3.92/4.00)