

SUMMARY

Waterloo Engineering; Experienced Robotacist; Avid Drone Hobbyist; Non-Profit Founder; WM Coach

EXPERIENCE

Lead Builder, Designer, Coder, Robot Driver

Sep 2020 — Aug 2026

VEX V5 Robotics Competition – Team 210K

- Designed and machined competition robot subsystems using **CAD** (Autodesk Inventor/Fusion 360), iterating drivetrain and manipulator mechanisms across a 10-month build season.
- Implemented **PID**-based speed control, **odometry** and **pure pursuit** path tracking, and a boomerang controller for autonomous positioning in **C++** using **VEXcode/PROS**; experimented with **Monte Carlo localization** for robot pose estimation.
- Led team to a **top-100 global** ranking and **top-5 Canadian** standing out of 40,000+ teams (2024 season), placing in the **top 0.5%** worldwide.
- Earned **40+** regional, national, and international awards for design, programming, and performance
- Represented Canada at the VEX Robotics World Championship **five consecutive years**.

Robotics Team Lead

Sep 2023 – Jun 2026

FIRST Tech Challenge – Team 24226

- Independently built and led a school robotics team from the ground up with no prior guidance, culminating in a Team Lead role senior year.
- Designed in **Fusion**, built from **aluminum/steel/polycarb**, and programmed in **Python (VS-Code)**
- Earned **7 competition awards** and 2 provincial qualifications over 3 seasons.

Robotics Mentor/Coach

Jul 2022 – Jun 2026

Western Mechatronics Robotics Club

- Coached middle/high school students and peers in robotics fundamentals, translating competition-level concepts into accessible lessons for beginners.
- Organized and ran annual summer camps/classes to grow club participation and introduce more students to **STEM**.

Student Advisory Board Member & Student Ambassador

Sep 2023 – May 2026

REC Foundation

- Sole Canadian student representative on the international **RECF Student Advisory Board**, advising on program design, equity, and judging standards.
- Served as Student Ambassador at the **VEX Robotics World Championship**, engaging sponsors and government officials.

Co-Founder

Jun 2023 – Present

Alpine Reasoning Challenge

- Co-founded a non-profit teaching STEM (mechanical engineering, **C++/Python**, competition math) to middle/high schoolers across Calgary.
- Organized STEM competitions for highschoolers, including **RMJSC 2026**.
- Raised **\$15,000+** in sponsorships, grants, and donations to fund free educational programming.

PROJECTS

Autonomous Quadcopter

August 2026 – Present

Personal Project

- Mechanical: Designed and 3D printed a custom 50cm frame in **Fusion 360**, now on its **6th iteration**.
- Electrical: Soldered and wired all electronics solo – **ESCs**, **UBECs**, and **flight controller** peripherals – and configured GPS/compass loiter with **ArduPilot**.
- Software: Wrote a **Python** script for autonomous object-following using **PID** control and **YOLOv8**, running on a **Raspberry Pi** communicating with the flight controller over **MAVLink**.

EDUCATION

University of Waterloo

Expected Graduation 2031

BASc Mechatronics Engineering