

Eric Wu

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Skills

Languages: C++, Python

Robotics and Technology: Fusion 360, SolidWorks, AutoCAD, Control Systems (PID, Pure Pursuit), Arduino

Tools: Lathe, Mill, 3-D Printing

Experience

University of Waterloo Formula Electric

Sept 2025 – Present

Suspension Team Member

Waterloo, ON

- **Machined 20+ suspension components to a $\pm 0.05\text{mm}$ tolerance**, including spacers, top hats, and assembly jigs for the Formula SAE Car
- Operated manual **mills** to machine aluminium plates and L-brackets, including **drilling and countersinking holes** for flush-mounted bolts
- Operated manual **lathes** to machine spacers, rod plugs, and top hats out of aluminium and steel for suspension subcomponents
- Designed **3D-printed** piston mounts for the front damper system, reducing vibration during vehicle operation

Churchill Robotics

Sept 2022 – May 2025

Mechanical Lead – Team 3388C

Calgary, AB

- **Top 10 national finish and top 2% overall among 20,000+ teams**; placed 1st and 3rd at the 2024 and 2025 Alberta Provincial Championships
- Designed and prototyped fully defined **SolidWorks assemblies** for drivetrains, shooters, and climbing mechanisms
- Iterated over **12+** competition-ready robots, reducing weight and improving mechanical efficiency while maintaining reliable structural rigidity

Projects

WaterlooWash

Dec 2025

Personal Project

Waterloo, ON

- Built a web application for monitoring shared laundry machine availability
- Implemented front-end logic and UI flows to display machine status and user interactions
- Deployed a live web prototype and validated functionality through user testing
- Awarded **1st Place Overall** at Figma Hackathon out of 100+ competing teams

CAD/Arduino Project

Nov 2025

Personal Project

Waterloo, ON

- Developed a centralized, multi-Arduino **leader-follower I²C control structure** coordinating distributed IR and ultrasonic sensors with real-time scoring displays
- Designed custom 3D-printed sensor and motor mounts in **SolidWorks**, integrating brushless DC motors to implement an **automated ball-return mechanism**
- **Improved scoring accuracy by 35%** through sensor calibration, debouncing, and timing-based filtering
- Awarded **Best Game Overall** at BoxBots Hackathon out of 60+ competing teams

X-Y Odometry and PID Controller

Feb 2025

Churchill Robotics

Calgary, AB

- Designed space-efficient, **laser-cut** X-Y odometry shells in Fusion 360, resulting in a **width reduction** of over 1.5 inches.
- Implemented a **Pure-Pursuit algorithm** and fine-tuned PID controllers, **increasing autonomous-routine success rates by ~45%**
- Used odometry feedback to improve autonomous path efficiency and repeatability

Education

University of Waterloo

Waterloo, ON

B.ASc in Mechatronics Engineering

Expected Graduation 2030

- **Certifications:** Certified SolidWorks Associate, WHMIS 15