

# ERIC ZHAO

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## SKILLS

**Software** | Python, C++, ROS 2, Git, Java, HTML, CSS, JavaScript  
**CAD** | SOLIDWORKS, Fusion 360, Onshape, AutoCAD, Tinkercad, GrabCAD, GD&T  
**Other Skills** | Raspberry Pi, Arduino, CircuitMaker, Jira, Microsoft Office, Adobe Creative Suite

## WORK EXPERIENCE

### BotBuilt

Mechatronics Intern

May 2023 - Aug 2023

- Formulated processes and created tools for organizing and assembling electrical control panels and wiring harnesses.

### SPC (Stud-Plate-Connector) Unit Tester

ROS 2, Python, C++, Onshape

- Created a test bench to verify all functionalities of BotBuilt's SPC end-effector, used for connecting and nailing wooden frames.
- Integrated load cells to measure grip forces with an accuracy of **1 lbf**, and break-beam assemblies to capture nail gun speeds.
- Developed interfaces to control encoded motors to autonomously manipulate the SPC to various stations on the unit tester.

### Kindred Systems Inc.

Robotics Hardware Intern

Sep 2022 - Dec 2022

- Fabricated multiple parts out of sheet metal, aluminum extrusions, and plexiglass for use in developing prototype systems.

### Modular Induction Test Bench

Python, SOLIDWORKS, Excel

- Designed and built a test bench which automatically recirculates, picks, and places parcels for continuous gripper testing.
- Spec'ed and integrated a 24-bit servo drive with Python and **EtherNet/IP** for up to **1 mm** conveyor positioning accuracy.
- Developed a GUI to jog a FANUC arm with up to **1 mm** accuracy, and create custom pick and place routines.

### Ford Motor Company

Software Performance, Stability, and Power Optimization

Jan 2022 - Apr 2022

- Performed daily triages on battery drain events to determine ECUs responsible for keeping the vehicles hardware awake.

### Battery Drain Analysis Automation Script

Python, Selenium, Excel

- Developed a triage automation script able to download, scan, and analyze battery drain logs from the Ford's diagnostics portal.
- Improved triage analysis logic increasing the automated triage accuracy by **30%** and weekly triage speed by **25%**.

### Electrans Technologies Ltd.

Mechatronics Engineering Intern

May 2021 - Sep 2021

- Initiated and completed several projects to help develop a next generation electronic auxiliary system for commercial vehicles.

### Electric Vehicle Battery Status Monitor

CircuitMaker, Fusion 360, C++, Arduino

- Designed a custom PCB to monitor and display the state of charge, voltage, and current draw of a high voltage system.
- Implemented Arduino code to receive specific **CAN bus** messages for general system state monitoring.

## DESIGN TEAM EXPERIENCE

### Midnight Sun Solar Car Team

Battery Box Lead

Jan 2021 - Present

- Leading the team responsible for the design of a battery pack and enclosure for a fully solar powered electric car.

## EDUCATION

University of Waterloo

Candidate for BAsC, Mechatronics Engineering

Sep 2020 - Apr 2025

Cumulative GPA: 93.09 (3.93)

## AWARDS

First in Class Engineering Scholarship

Feb 2021

Presented to the top student of the class during each term.