

# Bryan Heddle

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## LINKS

[Github](#), [LinkedIn](#), [My Website](#)

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## SKILLS

**Software:** Java, Python, C++, JavaScript, React, NodeJS, Git, Arduino, Raspberry Pi, Jetson Nano, ROS2.

**Mechanical:** Solidworks, Structural Design and Analysis, Finite Elements Analysis

**Electrical:** Circuit Design and Analysis, PCB Design, Computer Design and Assembly

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## EDUCATION

Sep 2022 — Dec 2027

**Mechatronics and AI Systems Engineer Bachelors Dual Degree,  
University of Western Ontario**

- Achieved Dean's Honor List (2022-2024)
- Won Design 1050 Project Showcase
- CSWA Certified
- First Place in Western's Engineering Competition 2024 (Re-Engineering)

Coursework: Algorithms and Data Structures, Software System Design, Statistics, SolidWorks

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## EXPERIENCE

Sep 2023 — Present

**Lead Software Engineer, WeMars: Western's Mars Rover Team**

- Developed a real-time video streaming application that transmits high-quality streams to be viewed on a front-end using Python, enhancing our system monitoring abilities.
- Equipped our rover with real-time tracking by integrating an IMU and GPS into our embedded systems, which allowed for more detailed system monitoring.
- Optimized data transmission on our rover via CANbus communications, ensuring noise-free and reliable data flow through pipelines.
- Increased our real-time processing efficiency by using ROS2 for data management from multiple sensors and motor controls, enhancing our rover's responsiveness.
- Integrated LiDAR and camera systems using a Jetson Nano to provide comprehensive visual coverage for our rover.
- Developing a computer vision model using depth cameras and LiDAR for future integration into autonomous navigation systems.

Sep 2023 — Present

**Controls Engineer, Western Aero Design**

- Developed a database for storing sensor data and integrated a Python back end for sending data, and a React.js front end for displaying the data, utilizing Docker I ensured smooth operation for users.
- Collaborated on the design of a new PCB using Fusion360, focusing on enhancing aircraft control and data collection efficiency

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## PERSONAL PROJECTS

Jun 2023 — Aug 2023

**Robotic Arm Project**

- Designed robotic arm components using SolidWorks, optimizing for 3D printing and assembly.
- Developed C++ servo scripts with Arduino IDE to parse incoming data and control the motors of the robotic arm
- Designed a C# Windows application to facilitate data transmission to an Arduino UNO via Bluetooth, prioritizing efficiency and practicality
- Configured an electrical circuit connecting an Arduino UNO with servo and stepper motor drivers, and a Bluetooth chip, ensuring stable current and regulated voltage

Jun 2024 — Sep 2024

**YOLOV3 Research Implementation**

- Implemented Computer vision model training methods based off of YOLOv3 research paper.
- Learned YOLOv3's darknet architecture in order to train weights on a pre-made dataset
- Optimized loss functions based off of techniques used in the YOLOv3 research paper.