Jeffrey Wan

Systems Engineer | Mech Eng Grad | ROS2 • CV • Python

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Experience

**Robotics Engineer Intern,** [MiTeGen](https://www.fstl1992.com/) LLC – Ithaca, NY September 2023 [– Dec](https://www.reddit.com/r/EngineeringResumes/wiki/index#wiki_dates)ember 2023

* Created Python-based motion control system integrating sensors, GUI, and sequenced automation for cryo-EM workflows, reducing manual handling and improving test reliability
* Slashed electronics cost by 25% by creating a lightweight version of the Python-based control software for the raspberry Pi, enabling compact hardware integration
* Integrated laser sensors and solenoids into machine automation by converting manual components into electronically controlled systems reducing human error
* Designed and built a rapid-cooled slush nitrogen system using SolidWorks and Arduino, applying DFM to create a reliable, test-ready prototype with 10× faster cooling performance
* Developed robotic motion routines in Epson RC+ and integrated sensor-actuated workflows for precision automation in cryo-EM sample prep, contributing to real-world quality assurance processes

**Research assistant,** University of Waterloo– Waterloo, ON May 2022 – August 2022

* Designed a low-cost educational alternative to Instron material testing machines, reducing teaching costs by 98%
* Built Finite Element models using Ansys to simulate machine sample deformation and failure modes, ensuring 98% accuracy of the material testing machines
* Developed an Azure Percept model using visual machine learning (YOLOv5 and OPENVINO IR) to recognize stress and failure in a chair, giving 98% accuracy

**Process Engineer Co-Op,** Amphenol CTI Industries– Scarborough, ON January 2021 – April 2021

* Streamlined the package receiving process, doubling the package process rate by analyzing and redesigning workflows using process maps(flowcharts)
* Slashed wire harnesses’ resource costs by 20% by employing SQL queries to update and verify bill of materials, reducing overuse
* Inspected wire harness assemblies to identify unnecessary material usage (e.g., shrink tubing), reducing resource overuse by 15%

Projects

**ROS-Unity Simulation Project** February 2025 – May 2025

* Built full robotics software stack in ROS2 for autonomous target engagement, integrating OpenCV vision, CNN-based classification, and a Unity-simulated mechatronic system
* Integrated OpenCV, PyTorch, and control algorithms to enable real-time targeting and aiming

**QuantConnect Strategies Web App** May 2025 - Present

* Built a browser-based backtesting app using Flask and JavaScript, enabling real-time strategy tuning through an interactive UI
* Integrated with QuantConnect Lean engine to run dynamic simulations based on user-defined trading parameters like moving average crossovers

Skills

**Software & Tools:** ROS2, Epson RC+, OpenCV, PyTorch, Git, Docker, AWS (Lambda, S3, EC2), MATLAB, Unity

**Programming:** Python, C++, SQL, JavaScript

**Mechanical & Embedded Systems:** Arduino, Raspberry Pi, Soldering, 3D Printing, Fusion 360, SolidWorks, AutoCAD

**Simulation:** ANSYS (Fluent, Mechanical), ABAQUS

**Languages:** English, French, Mandarin

Education

**University of Waterloo** – Bachelor of Applied Science in Mechanical Engineering September 2018 - April 2024

Relevant courses: autonomous mobile robots (ROS), finite element analysis (ABAQUS), fluid dynamics (ANSYS FLUENT)