Oscar Emiliano Rodriguez Flores

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Objective

Motivated Mechatronics Engineering student, eager to contribute to a dynamic and innovation-driven environment, seeking a 4 - 8 month Co-op in 2025.

Key Skills

- ✓ Skilled in using SolidWorks for 3D design, as well as making drawings ready for manufacturing.
- ✓ Proficiency in programming languages including Python, C, C++, PLC (ladder logic, FBD, etc.)
- ✓ Data acquisition and analytics using Minitab, MATLAB, Python PANDAS.
- ✓ Skilled with Microsoft Office products (PowerPoint, Excel, Project, Word).
- ✓ Prototyping (breadboard circuitry, troubleshooting, soldering, 3D printing).
- ✓ Developing and performing material tests to analyze and interpret data.
- ✓ Proficient at using testing and measurement equipment (e.g., oscilloscopes, multimeters) for diagnostics.
- ✓ Familiar with manufacturing processes (CNC, milling, lathe, 3D printing, injection molding).
- ✓ Programming and integrating microcontrollers (Arduino, ESP32, TIVA C series) control in mechatronic systems.
- ✓ Effective leader and strong collaborator in team environments.
- ✓ Strong foundations in Engineering theory with willingness to learn and adapt.
- ✓ Project management – product development, scheduling, budgeting, and coordinating projects.

Education

Bachelor of Engineering - Mechatronics Engineering – Honours Degree September 2021 – Present

Robotics Specialization

Humber Polytechnic, Etobicoke, ON

- Dean's List achiever throughout my studies at Humber Polytechnic's Faculty of Applied Sciences & Technology.
- Relevant courses: Programmable Logic Controllers, Computer Programming, Statistics and Quality Assurance, System Modelling and Simulation, Signal Processing, Statistics and Power Transmission Systems.

Memberships

- Founding member of the RoboBoat Engineering Design Team at Humber:
    - Drove the initiative to enhance Humber's engagement in Engineering design competitions by starting this design team and participating in the upcoming autonomous RoboBoat competition.
    - Electronics sub team leader
        - Design and implementation electrical circuits to control the vessel.
        - Applying AI techniques to machine vision systems for tasks such as object detection, image classification, and pattern recognition to aid in autonomous navigation.
        - LiDAR mapping for navigation.

Hobbies

- Mountain biking and bicycle repair
- Electronics DIY Projects using Arduino, ESP32

Work Experience

Electromechanical Robotics Technician – Co-op student, F&P Manufacturing **May 2024 - current**

- Diagnosed and resolved problems related to electrical circuits, pneumatics systems, weld imperfections, sensor failures, robotic manipulators, ensuring optimal performance and product quality.
- Wiring automated cells and PLC modules using butt, crimp, and circular connectors for secure electrical connections.
- Use of testing and measurement equipment (multimeters, voltage testers) for troubleshooting.
- Performed daily troubleshooting and maintenance on 200+ robotic manipulators (Fanuc, Panasonic, Yaskawa)
- Implemented PLC improvements (Omron, Allen Bradley) to prevent quality issues, reducing defective parts and saving costs.
- Familiar with Industrial Automation Communication Protocols such as EtherCAT and DeviceNET.
- Integrated vision systems with object detection algorithms.

Research Assistant, Humber Polytechnic **January 2024 - current**

Research in collaboration with Stack Teck Ltd. with the objective of creating an automated system to shape heating elements to the user needs, aiming to reduce lead time by 70%, subcontracting cost savings of nearly $62,000 per year.

- Prototyped and designed solutions using SolidWorks and 3D printing, iterating through multiple designs.
- Developed testing setups, ran tests to collect and analyze data evaluating material properties guiding inform design decisions.
- Performed calculations to guide the design choices, ensuring long lifespan and accuracy of the system.
- Coordinated with project managers, professors, and stakeholders, ensuring the design met customer needs.
- System design in SolidWorks, creating detailed 3D models and precise 2D drawings & BOM for manufacturing.

Maintenance Worker, Cogir Senior Living **April 2023 – May 2024**

- Ensured functionality of the emergency system and maintain daily system logs.
- Use of hand tools to perform general maintenance daily around the building.
- Conducted daily safety inspections of the facility, identifying and addressing 100% of potential hazards.
- Effectively resolved resident's day-to-day issues, enhancing resident satisfaction.

Volunteer Coordinator Volunteer, Epilepsy Toronto "Busker fest" **Summer 2022**

- Coordinated with a team of 3 to manage over 250 volunteers, vendors, and performers for events.
- Data entry on Microsoft Excel and validation of information.
- Organized schedules for all volunteers.

References available upon request.