

# BRANDON MANLEY

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## Skills Summary

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**Software:** SolidWorks, Creo, Siemens NX, ANSYS Workbench, MATLAB, Calibry Nest, MS Office Suite

**Simulation:** Static/Transient Thermal, CFD Flow, Static Structural FEA, Ansys Composites Prep/Post

**Technical:** Circuit wiring, Pump and fluid system troubleshooting, 3D scanning, LaTeX

**Languages:** MATLAB, C, C++, Java, Arduino

## Experience

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### CanEV & University of Victoria

Sept 2024 - Dec 2024

- Optimized bus-bar cross-sections for continuous thermal loading using a custom MATLAB tool for static and transient analysis, achieving a safety factor of 3.
- Validated the cross sections through static and transient thermal sims achieving a 2 SF in ANSYS Workbench.
- Generated full-scale chassis renders using point cloud stitching in Calibry Nest, increasing design iterations by 25%.
- Developed an integrated sensor circuit for 6-axis accelerometers, enabling data acquisition on vehicle dynamics under real time load testing.

### WiserTech Marine Solutions

May 2023 - Aug 2023

- Programmed and calibrated an open-source CNC-based irrigation robot to regulate water output and monitor crop health. The health diagnosis enabled timely interventions that resulted in a 20% crop survival rate.
- Performed regular maintenance and repairs on pump components, mechanical linkages, and gantry tracks to ensure smooth operation, minimize downtime, and maintain system performance with up to 90% accuracy.
- Delivered concise and clear technical documentation to support effective communication and collaboration across cross-functional teams.

### Ballard Power Systems Inc.

Sep 2021 - April 2022

- Conducted a fluid dynamics analysis of the coolant subsystem and validated the results using SolidWorks Flow.
- Identified pressure drop zones within the system through flow analysis and diagnostics. Proposed and implemented design modifications that led to the reduction of operating temperatures by 10%.
- Generated GD&T-compliant manufacturing drawings following the company's in-house template and quality standards.
- Participated in cross functional team reviews to support smooth design handover changes for manufacturing.

## Clubs / Extracurricular

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### UVic Formula Hybrid

July 2024 - June 2025

- Developed a cost-effective procurement strategy by sourcing materials and coordinating with multiple suppliers for composite components, including the driver's seat and side pods.
- Utilized ANSYS Composite Pre/Post ACP to achieve design requirements and led hands on fabrication using vacuum resin infusion to manufacture high precision aero components.
- Validated physical test results against FEA simulations, confirming digital analysis accuracy and yielding 17% material reduction from previous seat iteration.
- Authored technical reports detailing design considerations for composite wet lay-up sequences, addressing structural performance, resin compatibility, and compliance with safety and electrical isolation requirements set by IEEE and Formula Hybrid + Electric Rules Committee.

### WEC Western Engineering Competition: Senior Design

Jan 2024

- Designed and built a mechanical 4-bar linkage system to collect scattered objects, achieving an 80% success rate.
- Programmed RGB sensors to distinguish debris and obstacles based on refracted light values.
- Communicated complex technical concepts to judges and team members in a time sensitive, high pressure environment.

### UVic Formula SAE

May 2021 - Apr 2022

- Designed and installed low-profile oil pan baffles to mitigate fluid surging during high G cornering.
- Performed wheel alignment and calibration to improve vehicle cornering performance, demonstrating practical problem solving in dynamic environments.

## Education

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### University of Victoria

Sept 2020 - Dec 2024

*Bachelor of Engineering - Mechanical Engineering*

*Victoria, B.C*

### Camosun College

Sept 2019 - May 2020

*Engineering Transfer Certificate*

*Victoria, B.C*