Brandon Manley

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Skills Summary

Software: SolidWorks, Creo, Siemens NX, ANSYS Workbench, Calibry Nest, LaTex, Linux
Simulation: Static/Transient Thermal, CFD Flow, Static Structural FEA, Ansys Composites Prep/Post
Technical: Composite wet layup, Resin infusion, Circuit wiring, Embedded systems debugging, 3D Scanning
Languages: MATLAB, C, C++, Java, Arduino

Experience (Co-op)

CanEV & University of Victoria — Sept 2024 - Dec 2024

- Optimized bus-bar cross-sections using a custom MATLAB tool and validated thermal performance through transient simulations, 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%.
- Designed an integrated sensor circuit and custom wiring harnesses for 6-axis accelerometers to support vehicle dynamics testing and enable future data acquisition.

WiserTech Marine Solutions — May 2023 - Aug 2023

- Developed and maintained an Arduino-controlled CNC irrigation system using high level serial communication to regulate water delivery based on sensor input.
- Troubleshot hardware faults and sensor drift in real-time field conditions, improving accuracy and system up time to 90%.
- Delivered detailed maintenance manuals and calibration guidelines for operators and cross disciplinary collaborators.
- Managed system health diagnostics remotely via wireless modules to pre-empt equipment failure

Ballard Power Systems Inc. — Sep 2021 - April 2022

- Performed CFD and thermal analysis of fuel cell coolant systems using SolidWorks Flow; identified pressure drop points and redesigned components to reduce internal temps by 10%.
- Created production-ready engineering drawings using GD&T in accordance with company QA templates.
- Collaborated with cross-functional teams to resolve manufacturing challenges and validate final component designs.
- Interpreted sensor and flow data to validate subsystem performance and detect anomalies during testing.

Clubs / Extracurricular

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 Hybric + 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 maneuvers.
- Assisted with alignment and calibration to enhance handling performance through hands-on troubleshooting and iterative testing.

Education

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*