Chase Berno

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Technical Skills

Design: Solidworks | Fusion | STAR-CCM+ CFD | MasterCAM | Design Optimization and Iteration | FEA
Software: MATLAB | C/C++ | Microsoft Suite (Excel, Powerpoint) | Website Design | SM Marketing | R
Manufacturing: 3D Printing | Carbon Fiber + Composites | CNC milling | Metalwork | Woodwork | Safety | DFA

Education

University of Victoria 4th-year student
B.Eng, Mechanical Engineering Graduation: August 2026
7.80 GPA on UVic's 9.0 scale, ≈ 3.95 GPA on 4.0 grading scale
Academic Excellence Awards: $17,500 combined

Work Experience

Cascade Aerospace *Abbotsford, BC*
Mechanical/Aerospace Engineering Intern Sept-Dec 2024

- Worked in a team developing repair procedures for the Canadian CC-130H Hercules fleet: considered the effects of previous damage, stress concentrations, aerodynamic changes, corrosion, etc, performed structural analysis and fatigue calculations to determine repair and NDT methods
- Created core engineering procedural documents based on Canadian Airworthiness Standards
- Damage Mapping: Located, photographed and recorded aircraft damage
- Created Excel spreadsheets and C++ scripts

Transport Canada Civil Aviation *Sidney, BC*
Research Intern May-Aug 2024

- Responsible for researching design standards, certification standards, and usage of ex-military helicopters (primarily the UH-60, CH-47, and UH-1) to analyze their safety in the aerial firefighting and logging role
- Considered factors, including changes to mission spectrum, fatigue, maintenance, safe life, damage tolerance, and OEM support, to determine potential risks and solutions qualitatively
- Produced a 60-page research paper summarizing all findings, identifying risks and recommending solutions, which is being used to influence future aviation regulations

Ocean Networks Canada (ONC) *Sidney, BC*
Mechanical Engineering Intern Jan-May 2023

- Designed 40+ parts, assemblies, and drawings in Solidworks, 3D printed and fabricated components
- assembled deep-sea research platforms, primarily hydrophone arrays, for ocean research and data collection
- wrote BOMs and assembly instruction manuals
- Coded C++ functions for an Arduino, deployed in a deep-sea magnetometer

Leadership Experience

Program Co-lead/Peer Advisor, Peer Assisted Student Success (PASS) Program May 2025-Current

- Provide advice and resources to younger students to help them succeed academically and professionally
- Created learning resources and networking programs, hosted office hours and exam review sessions
- Advertised the program through the creation of a website, Instagram, and in-person events

Mechanical/Aero Team Member, UVIC Formula SAE Club Dec 2024 - Current

- Manufactured dozens of components, including the carbon fibre body and wings of the car
- Designed components with solidworks and STAR-CCM, currently project lead for the front wing redesign

Technical Project Student, UVIC Center for Aerospace Research (CFAR) May - Sept 2025

- Designed, optimized, and manufactured 15+ components using 3D printing, thermoforming, and CNC milling, integrated a Hybrid-Electric Power System into a fixed-wing drone, completed aerodynamic tests
- Created a range estimator for hybrid-electric aircraft, determined power, propeller, and drag requirements

UVIC Volunteering: Science Rendezvous, Surfrider, and Global Community Mentor 2024-2025

Hobbies and Interests

Hiking, Mountain Biking, Skiing, Problem Solving, Learning, Weight-Lifting, Dirtbiking

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4th Year Mechanical Engineering Student

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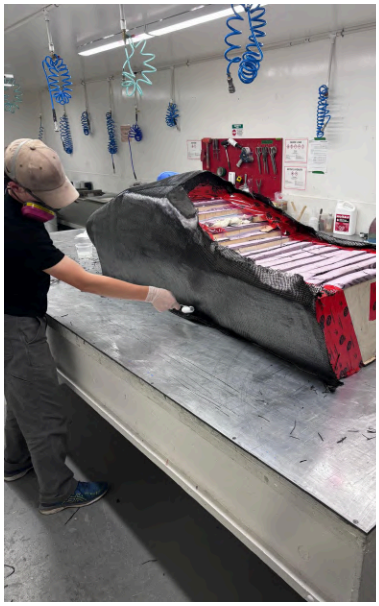
Carbon Fibre Manufacturing: Formula SAE



What?

- Worked with a small team to Fabricate the mould and Carbon Fiber body for the 2025 UVIC Formula SAE car. The body was manufactured as a single piece for the first time in the clubs history

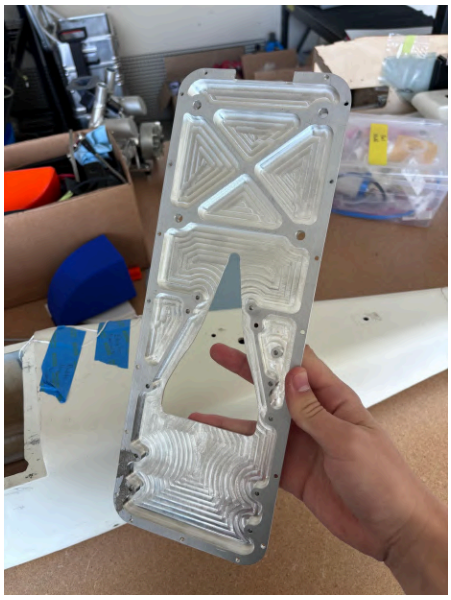
How?

- The withstand the compressive forces during manufacturing and to achieve the correct dimensions, the mould was made with lasercut plywood, high strength foam, and some 3D printed inserts. The mould was covered in Bondo to achieve a smooth surface
- The body was made with 2 layers of carbon fiber and compressed pulled under a light vacuum

Results

- The mould withstood the compressive forces of vacuum bagging, and the carbon fiber body was successfully manufactured.The body was tested during the 2025 FSAE competition in michigan and performed perfectly

Hybrid-Electric Experimental drone: UVIC Center for Aerospace Research



What?

- Completed a technical project at UVIC's Center for Aerospace Research involving the integration of a hybrid electric power system into a fixed with drone. Parts to fit a gasoline engine into the drone, including fairings, intakes, exhausts, a reinforced floorboard, a liquid cooling system, numerous cutting jigs, and several other components had to be designed, fabricated, and integrated

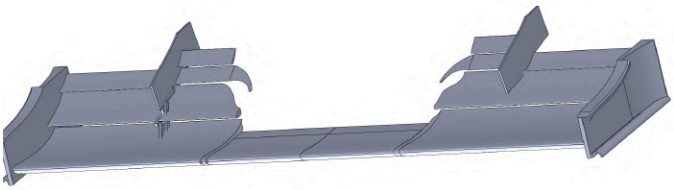
How?

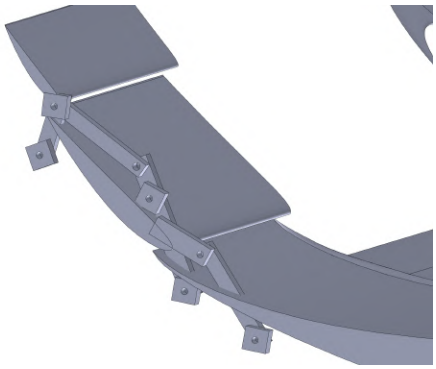
- Fairings were manufactured by thermoforming plastic sheets over a 3D printed mould. Numerous cutting jigs were sized around the required holes needed to accommodate the engine, inlets, and exhausts. The submerged NACA duct was designed and optimized to provide air to the radiator, and a radiator exhaust was positioned in the tail. The floorboard was designed to support the engine, NACA duct , radiator, and most other internal components. G-code was generated in both MasterCAM and Fusion, and the plate was CNC milled.

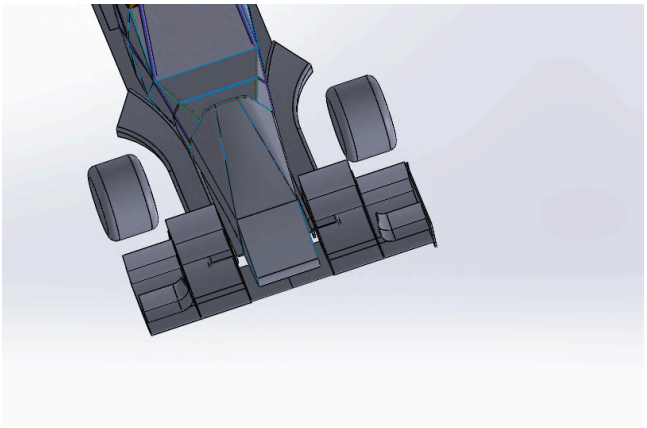
Results

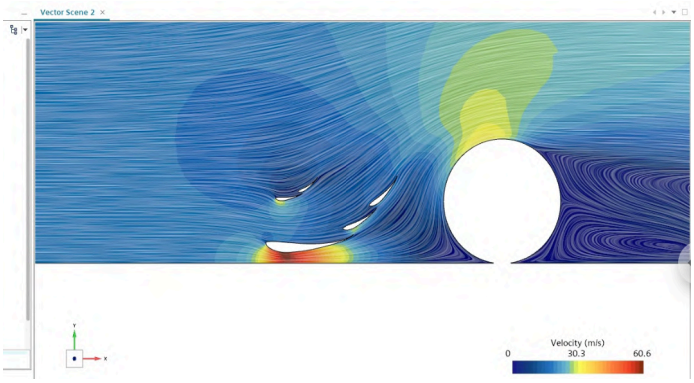
- Components were manufactured and integrated successfully. All components were integrated successfully with one another. Results were positive and CFAR was satisfied with the results

Formula SAE Front Wing + Aero Package Design









What?

- Currently working on a complete redesign on the aero package for the formula car, with my main responsibility being all aspects of the front wing design. The wing is designed to optimize interactions with a new undertray and the rest of the car
- Currently experimenting with a fowler-flap style drag reduction (DRS) mechanism
- Optimizing results using STAR-CCM+
- Experimenting with forged carbon for endplate fabrication

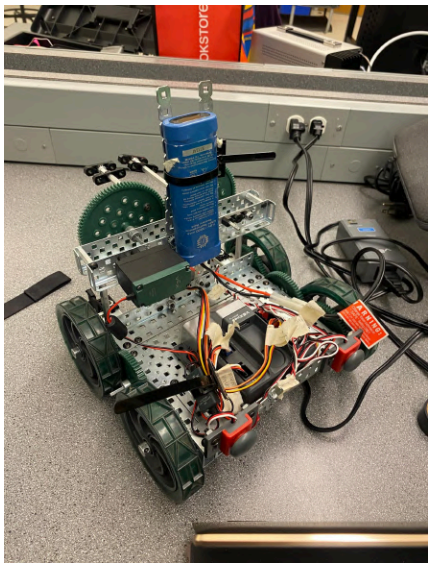
How?

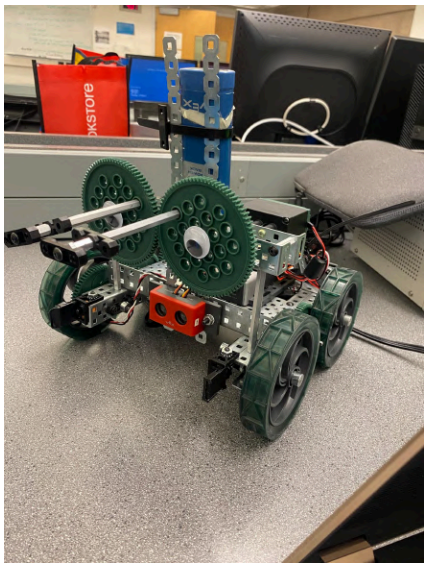
- Initial specifications and design principles were identified, such as determining vortex locations, adding canards and other elements for flow conditioning, and directing air into the undertray and radiators. Different configurations are currently being optimized in STAR-CCM+ 3D simulations.

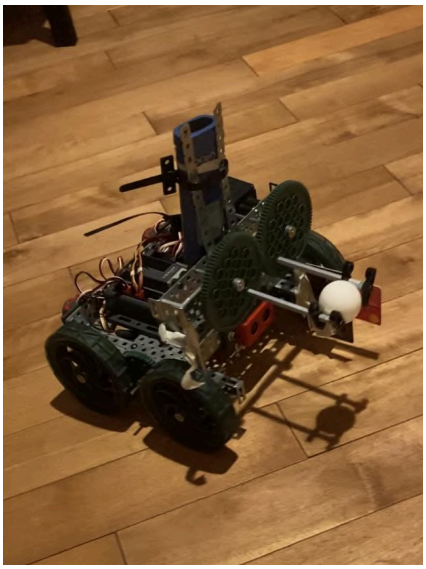
Results

- CFD results are promising, and a general layout and design objectives has been determined. Current results are producing 20% more downforce over previous wing designs, with an improved Cl/Cd

Fully Autonomous VEX Robot







What?

- Designed, build, and coded a fully autonomous VEX robot that automatically located an infrared target, drops a ball on the target, and then automatically moves to the nearest wall in the room

How?

- The robot was built using VEX components and infrared sensors
- The robot was programmed in C, including numerous functions that make decisions based on sensor inputs

Results

- The robot was able to locate the target, drop the ball, and move to the nearest wall in under 30 seconds, achieving a 100% success rate