CALLUM EWEN

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Education:

University of New Brunswick Fredericton 2024 - present

- Mechanical Engineering Program
- CSWA certified

SolidWorks CSWA Certification

Engineering experience:

FIRST Robotics MDHS 3571 Team Executive (2023), Lead Designer (2021–22).

In charge of a full student team by delegating project tasks while designing and custom machining (though mills, lathes, CNC, laser cutters and 3d printing) robotic components, including the chassis, intake, and ball shooter.

UNB FSAE drivetrain member 2025-2026 term

- Lead drivetrain scatter shield design using SolidWorks Global Variables and full documentation to help integrate design for future iterations.

Various personal engineering projects

- Designed and utilized FEA, CFD for multiple projects using findings to make changes future design iterations.
- Multiple self-published projects with detailed fabrication guides, with clear documentation for public use.

Work Experience:

University of New Brunswick | *Engineering Makerspace Facilitator* | Feb 2026 – Present

- Troubleshot, repaired, and maintained 3D printers and various facility equipment.
- Adviser to engineering students on CAD, and slicer setting optimization for 3D printing.
- Supervised daily facility operations to enforce strict workplace safety protocols.

Dufferin Concrete (A CRH Company) | *Operations Summer Student* | Summers 2024 – 2026

- hands-on materials testing (slump, air, temperature, sample creation) and enforced strict quality standards, rejecting loads that did not meet standards
- Maintained plant machinery, managed landscape amount various plants, admixture loading, and independently managed sample delivery across southwestern Ontario.

WSP | *Field Services Assistant sidewalks Inspecting Toronto* | Aug 2022 – Nov 2022

- Responsible for independently completing inspections of city sidewalks to identify issues based on specific criteria.
- Used GIS software on assigned tablet to identify issues and record locations as a digital footprint.

Projects:

Universal 3d printed cold air intake design:

- developed a reverse engineering workflow to design custom 3D printable cold air intakes by converting spatial mockups using formable pool noodles into CAD via 3D scanning.
- Optimized a personal iteration using Ansys Fluent CFD, while finding a universal material though utilized hoop stress calculations and accounting for glass transition temperatures.

Lost formed carbon fiber manufacturing process:

- Developing a lost core composite manufacturing process to create complex hollow parts by applying carbon fiber sleeving and resin over 3D printed PVB core, which is then dissolved via isopropyl alcohol. With full process documentation.

Wheelchair Staircase Climber:

- Engineered a manual wheelchair stair-climber using a crank-slider mechanism to translate 100 lbs of input force into a mechanism capable of climbing stairs.
- Validated stability and a 4.5 factor of safety via CAD center-of-mass simulations, stress analysis, and 3D-printed scale prototyping with accurate and scaled ceenter of gravity to account for person and wheelchair.

Supersonic Model Rocket:

- Engineered a Mach 1 rocket, performing extensive aerodynamic simulations in OpenRocket across multiple design iterations.

Proficient Skills/ Certifications:

- Proficient in SolidWorks, Autodesk Inventor, Fusion 360, AutoCAD
- laser cutting (Trotec engraving software), and computer repair/manufacturing. 3D printing (Cura, Bambu, Prusa), CNC experience.
- Experience with MATLAB, Arduino, Visual Studio Python.
- Proficient in Microsoft Office, Word, Excel, PowerPoint, SharePoint and Outlook.
- experience with soldering, wire routing, crimping.
- Driving Licence: G
- Ontario Health and Safety Training
- Experience with Hand and Power Tools, Machining skills (lathe, mill, drill press, band saw).
- Physically fit and able to lift 50+ lbs.
- Dual Citizen (Canada & United Kingdom) — Authorized to work in both

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Volunteer Experience:

Volunteer Ski Assistant and Apprentice at Glen Eden Winter Seasons 2018/2020

- Assisting ski instructors with duties such as chairlift escorting and demonstration. Adhered and supported compliance with health and safety standards

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Hobbies:

Skiing, Drumming, Hiking, Cooking, 3D printing, Cad Design, Model Rocket Design, Hockey Goalie, Soccer, rock climbing, and Fitness.