Cameron Birkby

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Education

Bachelor of Engineering - Mechanical (Mechatronics Specialization) **Sep 2022 - May 2027**

University of British Columbia | 3.96/4.00 | Co-op Student | Available Jan-Aug 2026 *Vancouver, BC*

Skills

Design	CAD | FEA | Rapid Prototyping | GD&T | FPGA | Electronics Assembly | Lab Instrumentation
Software	Python | MATLAB | C | SolidWorks | LabVIEW | Excel/VBA | Arduino | VHDL | PowerBI
Manufacturing	3D Printer | Mill | Waterjet Cutter | Lathe | Drill Press | Shop Tools

Experience

Suncor – Production **May 2025 - Aug 2025**

Mechatronics Engineering Co-op *Calgary, AB*

- Managed a trial project to install **Suncor's first** permanent magnet motor oil pump by preparing an economic analysis, risk assessment, and technical decision report, **boosting power efficiency by 22%** and creating an **NPV of $1.3 M**.
- Presented emerging technology projects to audiences of **70+ engineers**, consistently being identified as an **excellent and engaging speaker**.

Suncor – Completions **May 2024 - Dec 2024**

Mechanical Engineering Co-op *Calgary, AB*

- Coordinated the **redesign and upgrade** of a thermally defective well component by using historical analysis to identify failure trends and resolve reliability issues, resulting in **projected savings of $2.3 M**.
- Optimized the geometry of an oil well array by using **FEA** to model yielding and buckling thresholds, **extending well range by 50%** and increasing flow rates.
- Automated financial expense reports in **Excel and Power BI** using direct data transfer from project databases, **reducing labor by 90%** and saving **200+ hours annually**.

Surerus Murphy **May 2023 - Aug 2023**

Engineering Intern *Calgary, AB*

- Created and distributed a **video tutorial series** to train field personnel on company GIS software, amassing **hundreds of views** company-wide.
- Programmed **Python software** to calculate the maximum lifting capacity for construction vehicles accounting for vehicle specifications and terrain, **reducing manual labor by 95%**.

Projects

Permanent Magnet Motor Trial Installation **May 2025 - Aug 2025**

Suncor *Calgary, AB*

- Forecasted **permanent magnet motors** to be more economical than induction motors in oil pumps by executing on-site testing and evaluating **increases of 22%** in efficiency, **5%** in production, and **30%** in longevity, resulting in an **NPV of $1.3 M** for a trial installation.
- Led a **risk assessment** with engineers and vendors to strategize mitigation methods for safety risks by using a **risk matrix**, reducing the likelihood of key risks by **100x**.
- Prepared a technical report and **corporate presentation** to educate audience members of the project direction, safety concerns, and next steps, viewed **live by 70+ people**.

Remote Control Fire Truck | Portfolio **Jan 2024 - Apr 2024**

University of British Columbia *Vancouver, BC*

- Created a competition-grade RC fire truck using **mechanical design** and **rapid prototyping**, manufacturing systems for acceleration, steering, and water dispensing using **3D-printing, milling, and waterjet cutting**.
- Designed individual components in **SolidWorks CAD** and optimized the vehicle's gear ratio by using **MATLAB** to simulate the acceleration and torque throughout the race.

Video Game Binary Calculator | Portfolio **Feb 2025**

Personal Project

- Used binary logic circuits to create a **functional redstone calculator** in **Minecraft**.
- Includes a binary encoder, toggleable adder/subtractor, binary decoder, and 7-segment display.