

# Leumas Samuel

mechanical engineering student

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## TECHNICAL SKILLS

### MACHINING/FABRICATION

- Bench Lathe
- Milling Machine
- Drill Press
- Hand Tools/Woodworking
- 3D Printing
- CAN3 B78.1 M83 Drawings

### INSTRUMENTATION

- Soldering
- Wiring
- Oscilloscopes
- Digital Multimeters
- Signal Generator
- Circuit Diagrams/Analysis

### SOFTWARE

- Solidworks
- Autodesk Fusion 360
- AutoCAD
- MATLAB
- Arduino, C, Java, JavaScript
- MS/Google/Libre Office

## EDUCATION

**University of British Columbia**  
**Bachelor of Applied Science - Mechanical Engineering**

**Expected, June 2022**

Searching for Co-op Work Term 4/5 | Availability: 4 mo.

**University of British Columbia**  
**Bachelor of Science - Combined Major: Physics, Life Science, Chemistry**

**Ongoing**

Key Engineering Related Courses

- Waves, Light and Fluids (91%)
- Linear Algebra (96%)
- Software Construction, Computation Models, Functional Programming (90%+)

## TECHNICAL PROJECTS

**Autonomous Mars Rover | UBC Snowbots**

**September 2018 - Present**

- Proposed, spearheaded, devised strategies and designed a hybrid suspension system using engineering design principles, minimum constraint design, c-sketching, and Solidworks + Autodesk Fusion 360 CAD modelling
- Prototyped, with four students, proof of concepts using machine shop and woodworking shop equipment, microcontrollers, and 3D printing, enforcing strict safety protocol to ensure team members avoid operation related injuries
- Verified concept fragment feasibility through focused analytical prototypes on Solidworks Stress Studies and first principles in solid mechanics
- Organized subprojects through functional decomposition, and assigned project tasks to group members

**Velocity Controlled Hovercraft | UBC**

**April 2019 - April 2019**

- Designed, validated, and prototyped with two students, several scaled hovering mechanisms utilizing fluid mechanics, pressure principles, and dynamics, capable of supporting up to 700g of added mass
- Conducted a focused analytical simulation model to determine hovercraft plenum heights at varying battery loads on Google Sheets
- Completed a comprehensive final hovercraft prototype with six students to compete against 20 teams based on vehicle acceleration, velocity control, and predictability, achieved an NPV of 13.6% more than the third ranked vehicle
- Optimized motor mounts for mass savings, and assisted in chassis optimization via. space frame to reduce mass by 48%
- Presented final prototype and recommendations to fictitious clients through a formal presentation