

Eric Bokenfohr

Mechatronics Engineering Student

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Work Experience

UBC Mechanical Engineering Vancouver, BC
Undergraduate TA Sep 2021 – Present

- Instruct and evaluate 124 second year mechanical engineering students in key dynamics and fluids concepts through labs

Westport Fuel Systems Vancouver, BC
Combustion, Performance, & Emissions Engineering Co-op Jan – Aug 2021

- Designed and conducted engine experiments to optimize engine hardware and software, and utilized MATLAB-processed results to develop new calibrations
- Performed initial testing of a hydrogen-fuelled engine that has comparable efficiency to a diesel engine, but with very low carbon emissions
- Resolved on-engine mechanical and software issues through testing

Rostrum Medical Innovations Inc. Vancouver, BC
Hardware Engineering Co-op Jul – Sep 2020

- Performed verification testing on sensors for the VQm Pulmonary Health Monitor to make sure the correct gas levels are delivered to patients
- Tested electrical valves and regulators to verify the components would not fail over the lifetime of the VQm
- Created leak-test procedures based on ISO standards, and used SolidWorks to create custom breathing circuit fittings

NORAM Engineering and Constructors Ltd. Vancouver, BC
Mechanical Engineering Co-op, Electrochemical Division May – Dec 2019

- Designed and manufactured a panel-mounted system for leak-testing electrochemical cell vent lines
- Designed and assembled pilot plant frames, components, and systems using engineering drawings and P&IDs
- Conducted single electrode potential tests to verify that anode-mesh coatings were applied correctly

Student Team Experience

UBC Supermileage Team University of British Columbia
Team Captain Sep 2018 – Present

- Manage a 51-member student design team that designs and builds three vehicles for international energy-efficiency competitions
- Procure and oversee a team budget of \$75,000, and manage engineering resources to build and optimize the team vehicles
- Coordinate and represent the team at events such as the UBC APSC Open House and Energy Disruptors Unite to raise awareness of STEM and the team, and network with sponsors

Key Achievements

- Oversaw the design, manufacturing, and testing for the team's first hydrogen fuel cell vehicle
- Designed a new composite vehicle chassis using ANSYS Composite PrepPost (ACP) that reduced the chassis mass by 28%
- Led the research & development of a new aerodynamic shell using STAR-CCM+ computational fluid dynamics (CFD) that showed a potential drag reduction of 25%
- Resolved vehicle issues under tight time constraints at both Shell Eco-Marathon Americas and the SAE Supermileage Competition, and placed 2nd with a decade-high mileage of 2229 mpg in 2019

Education

University of British Columbia
B.A.Sc. in Mechanical Engineering
Mechatronics Specialization
Prospective Graduation: Dec 2022
GPA: 3.86 (88%)



Technical Skills

Mechanical

SolidWorks | ANSYS (Mechanical, ACP) | STAR CCM+ | Dynamics | Composite Materials | Vibrations | Machining | Solid Mechanics | Heat Transfer

Programming

MATLAB and Simulink | Firmware | LaTeX | C/C#/C++ | Data Structures and Algorithms | Git and GitHub

Mechatronics

Soldering | Sensors and Instrumentation | Microcontrollers | Systems Modelling/Control | Electromechanical Systems

Projects

Building Brick Sorter Nov – Dec 2021

- Designed and built a mechatronics system for sorting toy building bricks by colour on a conveyor
- Implemented computer vision to identify block colour, and a MSP430 microcontroller to run the conveyor and actuate servo motors for sorting

Para-Safe Sep – Nov 2020

- Designed a portable air-purifying respirator for paramedics during the COVID-19 pandemic with five team members
- Selected a blower fan and battery for the device based on engineering calculations, and completed a detailed design recommendation report

Awards and Certificates

University of British Columbia

James B McLaren Memorial Scholarship	2021
MECH Leadership Award	2021
MECH Academic Achievement Award	2020
Trek Excellence Scholarship	2018, 2019
Dean's Honour List	2017-2020

Engineers and Geoscientists BC

Student Member Scholarship	2022
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SOLIDWORKS

Certified SOLIDWORKS Associate	2019
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