

# Tom Rotbart

## Manufacturing Engineering Student

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### DESIRED INTERNSHIP

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Looking for an internship related to CAE & CFD to make engineering decisions starting summer 2025

### PROFESSIONAL EXPERIENCE

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#### Fuel Cell Systems Engineering Internship

09/2024 – 04/2025

FTXT Canada

- Modelling water transport phenomena in **MATLAB** to understand unknown water behaviour in stack and applying model to collected raw datasets using **Python**
- **Decreased time** for quality control analysis **by 360 times** using **Python** to check if all samples pass strength and bending modulus requirements *simultaneously*

#### Aerodynamics Lead & Treasurer

06/2022 – present

Formula UBC Racing

- Created and implemented a full & half car external aerodynamics **1h CAD to CFD workflow** including automatic meshing, physics, and post processing scenes & plots to run on a **Linux HPC cluster** using **SLURM** job scheduler
- Designed and simulated dual-pass single-core radiator to validate cooling system of a vehicle using STAR-CCM+, confirming **17kW of heat dissipation capacity**
- Simulated a sweep of Front Wing locations to validate undertray performance in 3D using Star-CCM+ and **determined a ride height of 12% chord length** maximized **rear diffuser efficiency at a 4.17 L/D ratio**
- Lead a team of **10 engineering students** through the aerodynamic design process of researching, designing, manufacturing, validating, and documenting a FSAE vehicle aero package following **design requirements & objectives**

#### Aerodynamics Member

09/2020 – 06/2022

Formula UBC Racing

- Investigated cause of **carbon fibre defects** in previous aerofoil manufacturing methods, then **researched and tested** a one part aerofoil manufacturing method resulting in **near perfect wing surface finish**
- Analyzed aero forces extracted from a constant velocity test to validate my CFD simulations using **Python Pandas & Numpy libraries** obtaining a **CL\*A value of 2.69 with 4.07% uncertainty**

### EDUCATION

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#### Bachelor of Applied Science

05/2027

University of British Columbia

Manufacturing Engineering, Commerce Minor

Dean's Honour List

### SKILLS

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#### Simulation Software

Star-CCM+, Linux HPC, SLURM, Ansys Fluent, Tecnomatix Plant Simulation, Ansys Mechanical

#### CAD/CAM

SolidWorks, HMSWorks, Designing for X

#### Testing & Manufacturing

CFD Analysis & Validation, Composite Manufacturing, Wind tunnels, SOFV, Waterjet, , CNC, Rapid prototyping

#### Coding

Python, MATLAB, HTML, CSS, JavaScript, Excel, R, Arduino,

### PERSONAL PROJECTS

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#### Website Portfolio

07/2021 – present

- Used **HTML, CSS, JS, & jQuery** to code a static website and deployed it with completed and ongoing projects

### AWARDS

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#### Patricia M. Mohr Award

Patricia M. Mohr - UBC

Awarded to academically outstanding engineering students demonstrating financial need - \$9,000