Fiona Mackenzie

6 Hillborne Court, Uxbridge Ontario, L9P 0K7
fionamackenzie0827@gmail.com
289-885-6039

SKILLS

CAD & 3D Modeling: Proficient in SolidWorks for mechanical design and simulation.
– Applied in *Torsional Stiffness Improvements on 4x Rowing Hulls* project.
Computational Fluid Dynamics (CFD): Experienced with ANSYS Fluent for fluid flow simulations.
– Used in *Leaning Tower of Pisa Wind Load Analysis* project.
Mechanical Testing: Hands-on experience with test setups and instrumentation; comfortable using tools and performing structured tests.
– Conducted vibration testing and carbon fibre material testing in *Torsional Stiffness Improvements on 4x Rowing Hulls* project.
Microsoft Excel: Proficient in data organization and analysis using formulas and charts.
MATLAB: Skilled in numerical analysis and automating engineering calculations.
Communication & Team Collaboration: Experienced in cross-functional teamwork, technical discussions, and sharing design feedback in collaborative settings.
Problem Solving & Process Thinking: Strong analytical skills with a structured approach to diagnosing problems and developing solutions.

EDUCATION

Bachelor of Science in Mechanical and Materials Engineering (BEng.)
September 2021 – June 2025

Relevant Coursework: Fluid Mechanics, Thermodynamics, Heat Transfer, Materials, Mechanical design, Engineering Mathematics, Electrical Engineering, and Reverse Engineering.

EXPERIENCE

Linde Canada Inc., Mississauga Ontario **May - August 2022**

Mechanical Engineering Summer Student Co-op, Customer Service Department

- Reviewed and updated cryogenic equipment asset information in the Enterprise Asset Management system (EAM).

- Reviewed and verified Canadian Registration Numbers (CRN) for pressure retaining components listed on Linde standard drawings; obtaining copies of applicable statutory declarations from vendors as required.
- Identified gaps/opportunities between the existing Linde standard maintenance program for cryogenic systems and industry best practice.
- All tank information organized using Microsoft Excel.

Urban Life Solutions, Mount Albert **May - August 2024**

- Landscaping, property planning and design.
- Environmental and safety implications.
- Operating motorized tools (Trimmer, Blower, Mowers, etc.).

PROJECTS

Tortional Stiffness Improvements on 4x Rowing Hulls – Fluidesign **2025**

- Increasing tortional and lateral stiffness, by altering dimensions and materials used on boats. Vibration testing, SolidWorks design and simulations, material three-point bend tests.

Leaning Tower of Pisa – Advanced CAE Computational Heat and Fluid Flow **2024**

- Analysing air flow around the Tower of Pisa, using Ansys Fluent simulations.
- Setting up geometry of domain, determining mesh properties and size, performing simulations.

Green Hydrogen for Transportation - Research Project **2022**

- Exploring the future of green hydrogen vehicles (Hydrogen fuel cells).
- Researched green hydrogen as a sustainable alternative fuel for transportation.
- Analyzed its zero-emission production via renewable-powered electrolysis.
- Evaluated challenges in onboard storage and vehicle integration.

CERTIFICATES

- SolidWorks Additive Manufacturing Associate – 2024
- SolidWorks Surfacing Professional – 2024
- SolidWorks Simulation Associate – 2024
- SolidWorks CAD Design Associate (CSWA) – 2022
- CPR Certificate – 2023