

MATTHEW MURRAY

MECHANICAL ENGINEER, UNIVERSITY OF WATERLOO

✉ matthew.murray@uwaterloo.ca

in linkedin.com/in/matthewamurray

☎ (647) 574-4921

SKILLS

Softwares: SolidWorks, CATIA V5, NX, ANSYS, STAR CCM, Git, Python, SQL, MATLAB, Simulink, VBA
Technical Skills: CFD, FEA, DFMA, Data Visualization, Statistical Analysis, Product Development, 3D Printing

PROFESSIONAL EXPERIENCE

Formlabs

Boston, MA

Research & Development Engineering Intern

Sep 2023 – Dec 2023

- Led the product, development, and testing of next-gen stereolithography (SLA) 3D printers, designed problem-solving algorithms, and played a pivotal role in the experimental design of software and hardware components.
- Enhanced SLA printer performance by redesigning LCD hardware, optimizing vacuum break force, and achieving a 15% print time reduction.
- Developed a print pause recovery feature, increasing print process robustness and reduced 37% of print fails.
- Improved SLA printer resin mixer efficiency through analytical CFD testing, aerodynamic lift optimization.
- Optimized workflow of printed dental applications, delivering orthodontic to customers in under 30 minutes.

Bombardier Inc.

Montreal, QC

Research & Technology Advanced Design Intern

Jan 2023 – Sep 2023

- Led project management and development of a 20% more fuel-efficient blended wing body aircraft.
- Designed a flight dynamics analysis system to capture a 400% larger sample of aircraft performance data.
- Collaborated with over 100 suppliers to define technical requirements for structural designs, manufacturing plans, and the integration of wings, fuselage, tail, and nacelles.

Avionics Systems Engineer Intern

Sep 2021 – Dec 2021

- Successfully integrated avionics systems on multiple aircraft models, including the Global 6500 and 7500.
- Developed system architecture for runway overrun prevention, reducing aviation incidents by 42%.
- Implemented and tested new avionics software and hardware changes to meet customer requirements, improve system performance, and verify compliance with airworthiness certifications.

PIA Automations

North York, ON

Project Engineering Intern

May 2022 – Sep 2022

- Managed multiple high-value automated electric vehicle manufacturing projects worth a total of \$10M.
- Achieved 95% product manufacturing repeatability through the iterative design of an alignment assembly tool.
- Optimized DFM processes for automated press fitting resulting in a 54% reduction in cycle times.

BWX Technologies

Cambridge, ON

Nuclear Project Engineering Intern

Jan 2021 – May 2021

- Managed the extension of CANDU nuclear reactor life by 15 months, increasing profit margins by \$500M.
- Analyzed polymer irradiation for hoisting cables, ensuring safe carriage of the refueling bridges.
- Developed laser measurement tools to correct axial and radial distortion in 480 fuel channels.

PROJECTS AND EXTRACURRICULARS

Waterloo Rocketry – Flight Dynamics Team

Jan 2023 – Present

- Improved rocket apogee by optimizing the fin geometry, reducing drag by 60% through CFD analysis.
- Successfully maintained a factor of safety of 1.8 against aerodynamic loads with FEA analysis.
- Developed vinyl finish manufacturing procedure to reduce airframe surface roughness and skin drag.

Ascend TECH – Capstone Project

May 2023 – Present

- Led the development of a lightweight, electrically assisted device for individuals with mobility challenges, achieving objectives including stair climbing, 30 Kg load support, and cost-effective, ergonomic design.

University of Waterloo Men's Varsity Soccer Team

Aug 2019 – Dec 2023

- Balanced full-time student responsibilities with a minimum of 26 weekly hours in technical/strength training, honing leadership, time management, teamwork, and communication skills for competitions.

EDUCATION

University of Waterloo

Sep 2019 – Apr 2024

Bachelor's, Mechanical Engineering, BAsC (6 Internships, 2 years experience)