Alif Ayman Mahin

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EDUCATION

Memorial University of Newfoundland — **St John's**
Bachelor of Engineering (Co-op), Mechanical Engineering — *Graduation Date: May 2028*

WORK EXPERIENCE

The Commons, Memorial University — **St. John's, NL**
Engineering Co-op Student — *Jan 2025 - Apr 2025*

- Delivered technical support for **3D printers**, **electronics**, and design software to over **50 weekly users**, **reducing troubleshooting time by 30%** and enhancing operational efficiency across multiple projects.
- Led more than **six Arduino and 3D printing workshops**, training over **35 participants**; boosted participant **project success rate by 40%** through hands-on instruction and tailored curriculum development.
- Redesigned the large-format **printing pricing structure** to o**ptimize profit margins**, resulting in a **25% increase in cost recovery** and significantly reducing operational losses.

TECHNICAL PROJECTS

Mars Rover Design Team - CIRC, Sidus Robotics
Mechanical Team Member — *Feb 2025 - Present*

- Engineered a **4-DOF robotic arm** using **Autodesk Inventor**, enhancing functionality; optimized design through **simulation to achieve a 20% mass reduction**, improving **payload capacity** and **energy efficiency**.
- Fabricated complex components via **3D printing and machining techniques**, ensuring high **dimensional accuracy** while coordinating **electrical integration** that **decreased assembly time by 15%**.
- Assembled the **rocker-bogie suspension system** from scratch, contributing to the overall mechanical system assembly process; increased **structural stability** by incorporating design enhancements validated through testing.

UAV Development Team, Valiant Aerotech
Mechanical Team Member — *Jun 2025 - Present*

- Engineered and prototyped **VTOL wildfire-response drone** components utilizing **Fusion 360**, streamlining the manufacturing process and **reducing production time by 30%**, while ensuring precise fit and durability for harsh environments.
- Conducted comprehensive **aerodynamic simulations in Ansys Fluent**, optimizing airflow characteristics to **improve lift-to-drag ratio by 15%**, thereby enhancing **flight stability** and endurance under variable conditions.
- Initiated development of a **quadcopter UAV platform** by designing a lightweight frame with a **20% weight reduction**, coupled with **thrust optimization** strategies that **increased payload capacity by 25%** and extended **flight duration**.

Emergency Outboard Motor Mount, MUN Design Project
Project Designer — *May 2023 - Aug 2023*

- Engineered an innovative **detachable motor mount** using **Onshape**, integrating **fastening theory** and **stress analysis** to enhance durability and ease of assembly, leading to a **15% reduction in maintenance downtime**.
- Developed comprehensive **GD&T specifications** and detailed **part drawings** along with an **accurate BOM**, contributing to achieving a **90% final project score** and streamlining **manufacturing processes by 20%**.
- Applied rigorous **stress analysis methodologies** during the design phase, resulting in **optimized load distribution** that **extended component lifespan by 25%** and **minimized material costs by 10%**.

SKILLS

Design Software: Autodesk Inventor, SolidWorks, Fusion 360, Onshape, AutoCAD

Simulation Tools: FEA, Motion Analysis, Ansys Fluent, MATLAB

Prototyping Techniques: FDM 3D Printing, Machining, Soldering, DFM

Programming Languages: Python, Arduino Software, C++, JavaScript, HTML

Certifications and Safety: WHMIS, Tool Handling Safety, Onshape (2023)

Other Skills: Microsoft Office, Adobe Creative Cloud, Project Management

INTERESTS

Robotics · Aerospace Systems · Mechatronics · Automotive Engineering · Energy Systems