Alif Ayman Mahin

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EDUCATION

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

EXPERIENCE

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

- Provided **technical support** for **3D printers**, **electronics**, and **CAD software**, assisting over **50 users** weekly and reducing troubleshooting time by **30%**.
- **Led 6+ hands-on workshops** on **Arduino** and **3D printing**, improving participant success rates by **40%** through tailored instruction and prototyping support.
- **Redesigned pricing model** for large-format printing services, increasing cost recovery by **25%** and helping minimize resource wastage.

PROJECTS

Mars Rover Design Team, Sidus Robotics — **St. John's, NL**
Mechanical Team Member — *Feb 2025 - Present*

- **Designed a 4-DOF robotic arm** using **Autodesk Inventor**, optimizing for weight and stiffness, achieving a **20% mass reduction** to enhance mobility.
- Collaborated with the **electrical team** during fabrication and testing, coordinating assembly to reduce integration time by **15%**.
- Reinforced and tested a **rocker-bogie suspension system**, validating design improvements through **field testing** and iterative refinements.

UAV Development Team, Valiant Aerotech — **St. John's, NL**
Mechanical Team Member — *Jun 2025 - Present*

- Developed **modular structural components** for a wildfire-response **VTOL UAV** using **Fusion 360**, reducing manufacturing time by **30%** via **DFMA techniques**.
- Performed **CFD analysis** in **ANSYS Fluent**, improving the drone's **lift-to-drag ratio by 15%** and increasing flight stability.
- Designed a **lightweight composite frame**, achieving a **20% reduction in mass** while increasing payload capacity by **25%** through structural and thrust optimization.

Emergency Outboard Motor Mount, MUN Design Project — **St. John's, NL**
Project Designer — *May 2023 - Aug 2023*

- Engineered a **detachable motor mount** in **Onshape**, applying **fastening theory** and **FEA** to extend part durability and simplify maintenance.
- Created detailed **technical drawings** and a **bill of materials (BOM)**, improving manufacturability by **20%** through part simplification.
- Performed **stress optimization**, extending component lifespan by **25%** and reducing material usage by **10%**.

SKILLS

Design & CAD: Autodesk Inventor, SolidWorks, Fusion 360, Onshape, AutoCAD
Simulation & Analysis: FEA, Motion Analysis, ANSYS Fluent, MATLAB
Prototyping & Fabrication: 3D Printing (FDM), Machining, Soldering, Design for Manufacturing (DFM)
Programming & Electronics: Python, Arduino, C++, JavaScript, HTML
Certifications & Safety: WHMIS, Tool Handling Safety, Onshape Certified (2023)
Other Tools: Microsoft Office, Adobe Creative Cloud, Project Management

INTERESTS

Robotics and Automation · Aerospace Systems · Sustainable Energy Engineering · Mechatronics Design · Automotive Innovation