

# ALIF AYMAN MAHIN

Mechanical Engineering Co-Op Student

+1 (709) 219-6127 | ✉ aamahin@mun.ca | 📍 St. John's, NL, Canada | [in LinkedIn](#) | [🌐 Portfolio](#)

## WORK EXPERIENCE

### Student Design Hub, Memorial University

St. John's, Canada

*Innovation and Prototyping Co-op*

Sep 2025 - Present

- Transformed detailed CAD designs into functional prototypes using GD&T, tolerance stacks, and DFM/DFA to improve manufacturability and assembly
- Supported 15+ engineering design teams (650+ students) with CNC machining, composites fabrication, 3D printing, and rapid prototyping
- Maintained fabrication equipment and enforced lab safety, contributing to \$350,000+ in funding secured through improved operational reliability and outreach
- Partnered with CoLab Software to deploy a digital CAD review pipeline, improving workspace layout, equipment access, and collaboration efficiency

### The Commons, Memorial University

St. John's, Canada

*Engineering Co-op Student*

Jan 2025 - Apr 2025

- Provided technical support for 3D printers, electronics, and design tools to 50+ users per week, improving uptime and user experience
- Reengineered a large-format printing pricing model, increasing cost recovery by 25% and streamlining workflow
- Delivered 6+ workshops on Arduino and 3D printing, training 35+ participants in rapid prototyping and hardware integration
- Diagnosed and calibrated FDM printers, implementing preventive maintenance that enhanced print reliability and quality

## ENGINEERING PROJECTS

### UAV Development Team - AEAC

Jun 2025 - Present

*Valiant Aerotech*

- Designed a next-generation surveillance quadcopter frame in SolidWorks with DFM considerations; validated structure through FEA for strength-to-weight optimization
- Built a precision stability-testing jig, improving calibration accuracy and repeatability of validation tests
- Machined carbon fiber components and fabricated composite structures, increasing airframe durability and stiffness-to-weight ratio

### Mars Rover Design Team - CIRC

Feb 2025 - Present

*Sidus Robotics*

- Designed a 4-DOF robotic arm and reduced mass by 20% using FEA-driven optimization without compromising rigidity
- CNC-machined and 3D-printed mechanical components; integrated electrical hardware for functional prototype testing
- Built and tested a rocker-bogie suspension to improve rover mobility and traction on uneven terrain

## EDUCATION

**Memorial University of Newfoundland**, St John's, Canada

Jan 2023 - Present

**Bachelor in Mechanical Engineering Co-op**

Coursework and projects emphasizing mechanical design, CAD/FEA, prototyping, mechatronics, and system analysis

## SKILLS

**Design & Modeling:** SolidWorks, Inventor, Fusion 360, Onshape, DFM/DFA, GD&T

**Simulation:** Abaqus, Ansys, MATLAB Simulink, Finite Element Analysis

**Prototyping & Manufacturing:** CNC Machining, FDM/SLA 3D Printing, Carbon Fiber Composites

**Certifications:** WHMIS, RPAS – Advanced Operations (Transport Canada, 2025)

## VOLUNTEERING

### FIRST Robotics NL

St. John's, NL

*FTC Robot Inspector and Referee*

Dec 2025

Volunteered at the 2025 FIRST Robotics NL competition as an FTC robot inspector and referee, ensuring the safety and rule compliance of robots from eight high-school teams while supporting match operations through scoring, rule enforcement, and field resets.