Alif Ayman Mahin

Mechanical Engineering Co-Op Student

+1 (709) 219-6127 | aamahin@mun.ca | St. John's, NL, Canada | 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.