ALIF AYMAN MAHIN *Mechanical Engineering Co-Op Student*

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WORK EXPERIENCE

Innovation and Prototyping Co-op Sep 2025 – Present | St. John's, Canada
Student Design Hub, Memorial University

- Led design reviews for 15+ teams, flagging manufacturability, tolerance, and structural risks before fabrication
- Produced GD&T drawings and CAM-ready models for CNC, composites, and additive manufacturing
- Resolved fabrication failures including delamination, warping, and tolerance stack-ups in prototypes
- Standardized the design-to-manufacturing workflow using CoLab to cut turnaround time
- Coordinated fabrication schedules for 600+ members to meet competition and sponsor deadlines
- Organized student design showcases and sponsor outreach events that helped secure $350K+ in funding

Engineering Co-op Student Jan 2025 – Apr 2025 | St. John's, Canada
The Commons, Memorial University

- Calibrated and maintained 3D printers and electronics stations to support high-volume student prototyping
- Delivered CAD, FDM, and Arduino workshops to 35+ students in rapid prototyping and design for manufacturing
- Reengineered large-format printing pricing and workflow to improve cost recovery and quoting accuracy
- Implemented preventative maintenance and failure diagnostics to increase equipment uptime

STUDENT TEAMS

Valiant Aerotech - AEAC Fire-Response UAV Jun 2025 – Present
Mechanical Team Lead

- Led mechanical design of a quadcopter fire-surveillance UAV, coordinating airframe, propulsion, and payload integration
- Designed a composite airframe in SolidWorks using DFM/DFA to minimize weight while enabling rapid assembly
- Manufactured carbon-fiber and metal AM components in-house and resolved stiffness and deflection issues
- Built a stability-calibration jig to experimentally validate frame symmetry and motor alignment
- Coordinated mechanical design decisions with avionics and controls teams to ensure system-level integration

Sidus Robotics - CIRC Mars Rover Feb 2025 – Present
Robotic Arm & Suspension Team

- Reduced robotic arm mass by 20% using Abaqus FEA while preserving joint stiffness and positioning accuracy
- Performed tolerance-driven CAD and kinematic analysis to ensure reliable reach and payload motion
- Designed and tested rocker-bogie suspension components enabling traversal of 15 cm obstacles
- CNC-machined and 3D-printed mechanical linkages and housings for subsystem validation
- Collaborated with electrical and software teams to ensure mechanical interfaces met integration requirements

SKILLS

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

Simulation: Abaqus (FEA), Ansys Fluent (CFD), MATLAB Simulink

Fabrication: CNC Machining, FDM/SLA Printing, Composite Fabrication

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

Computer Skills: Microsoft Office (Word, Excel, Powerpoint), Python

EDUCATION

Memorial University of Newfoundland Jan 2023 – Present | St. John's, Canada
Term 5, Mechanical Engineering, Class of 2028

Relevant Courses: Machine Design, Mechanics of Solids, Fluid Mechanics, Mechatronics, Materials Engineering, Thermodynamics, Production Technology, Engineering Economics, Engineering Graphics & Design

VOLUNTEERING

First Robotics NL, FTC Robot Inspector & Referee Dec 2025

- Inspected student-built robots for mechanical safety, drivetrain integrity, and structural compliance
- Evaluated robot designs against competition engineering rules prior to match approval
- Worked with teams to diagnose build issues and resolve technical disputes during matches