

SAMI HAFDI

Mechanical Engineering Student | McGill University

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EXPERIENCE

McGill Rocket Team - COPV Member

🏠 2025 - Present 📍 Propulsion Group

- Designed and analyzed a carbon fiber overwrapped pressure vessel (COPV) for 40% mass reduction in rocket tanks
- Fabricated a COPV prototype to store nitrous oxide at 900 psi and withstand a maximum compressive thrust force of 3420 lbf
- Performed on-site burst testing & leak testing (on-site experience), collecting experimental data to meet a safety factor of 3
- Produced dimensioned engineering drawings with tolerances to support manufacturing and integration within the architecture

DZ Rocket Club - Interuniversity Social Group

🏠 2025 - Present 📍 Montreal, QC

- Designed and modeled an amateur rocket airframe using CAD, then built the rocket structure using lightweight materials

Power analysis of eVTOL Aircraft - Project

🏠 2025 📍 Fluid Mechanics

- Modeled and optimized lift-plus-cruise eVTOL power requirements across hover, climb, transition, cruise, and descent
- Conducted energy and drag analysis, including rotor performance and battery sizing
- Sized key aircraft parameters including a 10-rotor configuration, 800 kg takeoff mass, and 82 kW hover power

SKILLS

⚙️ 3D Modeling, Assemblies & Simulations

SolidWorks, Siemens NX, Abaqus FEA

🔧 Manufacturing & Drawings (GD&T, DFMA)

MasterCAM, Siemens NX, Solidworks

📄 Coding & Calculations

MATLAB, Python, Excel

⚙️ Laboratory & Technical

Burst/Leak/Torsion Testing; Milling & Turning; WHMIS

EDUCATION

2023 - Present • Bachelor of Engineering (B.Eng.) in Mechanical Engineering McGill University - Montreal, QC

- Projects: **Power analysis of eVTOL Aircraft in thrust- and wing-borne modes**, CAD design of Pipe Inspection Robot, Conceptual design of accessible Swim Goggles, 100 MW Power Plant calculations
- Coursework: Solid & Deformable Mechanics, Thermodynamics, Fluid Mechanics, Materials Science, Mechanical Vibrations, Heat Transfer, Numerical & Applied Mathematics, Design & Manufacturing

2021 - 2023 • Sciences CEGEP Diploma Cégep Gérald-Godin - Montreal, QC

2016 - 2021 • International Baccalaureate (IB) High School Diploma Collège Saint-Louis - Montreal, QC

WORK EXPERIENCE

2025 - Present • Outdoor Sales Consultant

Club Piscine

- Closed \$300K+ in sales within 2-3 months; translated customer requirements into product solutions
- High-volume sales transactions; returns/exchanges; maintaining organized sales floor and Excel files

2021 - 2025 • Cinema Assistant Manager

Guzzo Cinemas

- 30+ Staff management; scheduling shifts; supervising team; resolving conflicts
- Inventory control; tracking stock levels, starting projectors, setting up movies

PROFILE

My name is Sami Hafdi, a 3rd-year student obsessed with aerospace, automobiles, and the art of manufacturing. My background in aerospace component design, prototype fabrication and on-site testing, combined with leadership experience, allows me to adapt quickly, take responsibility and follow through on tasks. I am perfectly bilingual in English and French. Seeking a 4-8 month internship.

Key Strengths: 3D Modeling, DFMA, Leadership & Teamwork

Interests: Judo, Electric Guitar, Cinematography