JULIAN AWAD

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Clearances Held (Canada): NATO Secret ◇ Controlled Goods Program ◇ Enhanced Reliability

EXPERIENCE

MDA - Mechanical Engineering Intern May 2022 - Present
MacDonald Dettwiler and Assc.

- Automated the entire end-to-end testing infrastructure for the CANADARM2 using Python, Pandas, and NumPy for efficient parsing, analysis and visualization of test data, leading to 10x time savings.
- Building a custom DAQ system using LabVIEW to be used in several testing scenarios, including up to 20 load cells, 10 LVDTs, and 8 thermocouples.
- Performing structural testing and analysis for Lunar Gateway Grapple Fixtures and End Effectors to characterize the stiffness of the latched assembly in all directions.
- Performing end-to-end control systems test campaigns for the CANADARM2 using HITL/SITL simulations.
- Defining system requirements for the GERS project (Lunar Gateway/CANADARM3) using PTC Windchill.

Co-Lead Propulsion Engineer September 2022 - Present
Queen's Rocket Engineering Team

- Designing the team's first student-built Hybrid Rocket Engine to reach an apogee of 10,000ft and compete at two international events against 150+ other schools.
- Writing a Python simulation to numerically model the turbulent boundary layer and fuel regression dynamics, allowing for the prediction and optimization of performance metrics such as thrust, chamber pressure, and specific impulse.
- Managing a team of 15+ engineering students to accomplish a hot-fire test through efficiently delegating tasks, providing learning resources, and maintaining deadlines while giving members autonomy and ownership of their work.
- Created Standard Operating Procedures (SOP) documentation in LaTeX for the safe operation of a cold-flow and hot-fire test, complete with hazard assessment, risk mitigation, and contingency planning

Lockheed Martin - Hardware Engineering Intern May 2021 - August 2021
CSC Project

- Performed detailed SolidWorks FEA analysis to validate equipment to Military Standard 901D
- Created an Excel VBA tool to generate shock response spectra from an impulse function for shock & vibe testing, resulting in a user-friendly program
- Accomplished overall 2x cost reduction and 4x time savings by performing detailed make-vs-buy analysis on electronics enclosures and presenting to senior engineers

SKILLS

Test Engineering	Data Acquisition Systems, LabVIEW, SolidWorks FEA
Data Analysis	Python/Jupyter, Numerical Methods, Scientific Computing, MATLAB, Git
Mechanical Engineering	SolidWorks, Autodesk Inventor, 3D Printing
Languages	English, French (Native Bilingual)

EDUCATION

Faculty of Engineering, Queen's University, Kingston ON September 2019 - May 2024 (Expected)

- Candidate for Bachelor of Engineering Physics, Mechanical Stream
- Dean's List with Honours for 6/6 semesters - GPA of 3.75/4.3

Publications

- Julian Awad, Nikhil Menda, William Conway, and David Puddy, "Investigation of Magnetic Radiation Shields for Human Space Habitats," J. Undergrad. Eng. Phys. Phys. Exp. Queens, Section 1, Vol 3.