

JULIAN AWAD

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EXPERIENCE

Co-Lead Propulsion Engineer

September 2022 - Present

Queen's Rocket Engineering Team

- Designing the team's first Hybrid Rocket Engine to compete in the SA Cup 10,000ft SRAD category
- Writing a Python simulation to numerically model the turbulent boundary layer regression dynamics, allowing for the prediction and optimization of performance metrics such as thrust, chamber pressure, and specific impulse.
- Managing a team of over 50 engineers 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

MDA - Mechanical Engineering Intern

May 2022 - Present

- 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 to characterize the stiffness of the latch 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.

Lockheed Martin - Hardware Engineering Intern

May 2021 - August 2021

- 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
- Clearances Held: NATO Secret, Controlled Goods Program, Enhanced Reliability

TECHNICAL SKILLS

Propulsion Systems

Hybrid Rocket Thermodynamics, Data Acquisition Systems

Data Analysis

Python/Jupyter, SciPy, Matplotlib, MATLAB, Git

Test Engineering

LabVIEW, MATLAB/Simulink, SolidWorks FEA, HITL/SITL Simulation

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.