

JULIAN AWAD

(613)-806-2681 ◇ julian.awad@queensu.ca ◇ www.linkedin.com/in/julian-awad

EXPERIENCE

Rocket Lab (Sinclair Interplanetary)

January 2023 - August 2023

Mechanical Engineering Intern

- Redesigned and prototyped the entire mechanical assembly of the 1000Nms reaction wheel, leading to significant improvements in manufacturability, ease of assembly, and performance.
- Analysed and characterized the magnetic field two different rotor magnetic arrays to determine optimal placement of hall sensors, resulting in an increase in measurement reliability.
- Assembled, inspected and tested to the highest available industry standards several satellite components currently operating on orbit.
- Designed and manufactured 7+ Ground Support Equipment to aid in testing, manufacturing, inspection, and assembly across all departments.

MDA

May 2022 - December 2022

Mechanical Engineering Intern

- 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.

PROJECTS & PUBLICATIONS

Undergraduate Publication

September 2021 - December 2021

An Investigation of Magnetic Radiation Shields for Human Space Habitats

Awad et al.

- Designed and conducted an experiment over 6 weeks to measure the viability of a superconducting magnet as an active shield from radiation, GCRs, and lunar regolith for lightweight space travel applications
- Manufactured a vacuum chamber with a cooling tube configuration, wire feed-through, and a beta particle detector capable of maintaining a vacuum of 0.1 Pa to minimize particle stopping power and reduce condensation
- Designed superconducting magnet configurations made of superconducting YBCO tape with a vacuum-tight cooling system to maintain critical temperatures of 77K
- Created a Python program to perform in-depth analysis of the raw data, including noise filtering, curve fitting, and extrapolation to demonstrate clear trends

SKILLS

Mechanical Engineering

Experimental Physics

Data Analysis

Languages

SolidWorks, Solid Edge, DFM & DFA, Manufacturing Methods, 3D Printing

DAQ with LabVIEW, Electronics, Experimental Design, Vacuum Systems

Python/Jupyter, Numerical Methods, Scientific Computing, MATLAB

English, French (Native Bilingual), Spanish

EDUCATION

Faculty of Engineering, Queen's University, Kingston ON

September 2019 - May 2024 (Expected)

- Bachelor of Engineering Physics, Mechanical Stream
- Dean's List with Honours - GPA of 3.77/4.3