JULIAN AWAD

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EXPERIENCE

MDA - Mechanical Engineering Intern May 2022 - Present

- Performing end-to-end control systems test campaigns for the CANADARM2 using HITL/SITL simulations.
- Programmed custom Python tools to convert raw test logs into actionable data and rich visual elements to automate test requirement validation, leading to a 10X increase in time efficiency.
- Created 2 custom LabVIEW DAQ VIs to seamlessly interface with various sensors such as thermocouples and load cells and process the data collected automatically.
- Responsible for every step of 20+ test cases in 6 kinematic modes, including configuring the hardware/software testbench, writing test scripts, parsing and analysing data, and interpretation of results.
- Defining system requirements for the Lunar Gateway/CANADARM3 project

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
- Created and presented a whitepaper detailing the thermal, ingress protection, shock resistance, safety, and maintenance considerations of mounting locations for electronics enclosures
- Clearances Held: NATO Secret, Controlled Goods Program, Enhanced Reliability

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

TECHNICAL SKILLS

Data Analysis	Python/Jupyter, SciPy, MatPlotLib, MATLAB, Git
Test Engineering	LabVIEW, MATLAB/Simulink, SolidWorks FEA, HILT/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.