LIAM A. WARD

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EDUCATION

Purdue University, School of Aeronautics & Astronautics — West Lafayette, IN
Master of Science, Aeronautics & Astronautics — Expected May 2024

- GPA: 4.00 / 4.00
- Graduate Research Assistant
- Major in Structures and Materials
- Minor in Aerospace Systems

Relevant Coursework: Mechanical Behavior of Aerospace Materials, Finite Element Methods in Aerospace Structures, Multidisciplinary Design Optimization, Systems-of-Systems Modeling and Analysis

Boston University College of Engineering, Kilachand Honors College — Boston, MA
Bachelor of Science, Mechanical Engineering — Expected May 2022

- GPA: 3.94 / 4.00; Dean's List (all semesters)
- Concentration in Aerospace Engineering
- Matthew Isakowitz Fellowship 2022
- Kenneth R. Lutchen Distinguished Research Fellowship

Relevant Coursework: Structural Mechanics, Mechanical Vibrations, Compressible Flow & Propulsion, Dynamics of Space Vehicles, Energy & Thermodynamics, Aircraft Performance & Design

EXPERIENCE

Aerospace Engineering Intern — May 2022 – August 2022
Hedron — Virtual

- Completed Size, Weight, & Power (SWaP) estimated for a next-generation optical communications payload.
- Implemented optomechanical design principles to produce module layout concepts and support trade studies.

Structures Engineer Intern — May 2021 – August 2021
ABL Space Systems — El Segundo, CA

- Completed the conceptual and detailed design of a heatshield closeout panel system to protect the aft end of the first stage of the RS1 orbital launch vehicle from extreme pressure and temperature environments.
- Developed structural analysis models for flight hardware using FEMAP/NASTRAN.
- Created MATLAB script to be used to size thermal protection system (TPS) required thickness.
- Researched and secured sources for material acquisition and manufacturing.

Intern — December 2020 – February 2021
Inversion Space — Virtual

- Identified requirements and specifications of and sourced components for a high-pressure propulsion fluids testing systems and designed support structure for the system.
- Researched and generated critical flight hardware concepts and modelled those concepts with CAD.

Distinguished Summer Research Fellow — May 2020 – August 2020
Sound & Vibration Laboratory, Boston University College of Engineering — Boston, MA

- Developed a novel physics-informed deep learning method to predict the power dissipated vs. frequency trend of a mass-spring-dashpot system more accurately than a model-agnostic neural network.

PROJECTS

"Oxidizer Tank Bulkhead," BU Rocket Propulsion Group — September 2019 – March 2022

- Designed in Solidworks the ellipsoidal 12" diameter end cap bulkhead of a 200°F, 700 psi, pressure-fed, nitrous oxide tank for a liquid fueled bipropellant rocket featuring a monocoque thrust structure.
- Produced mass-optimization programs for dome geometry in MATLAB.
- Conducted static simulations for a hold down test and supersonic flight conditions in ANSYS.

Additional Projects: High Power Rocket, N_2O/IPA Torch Igniter, Horn Antenna Radio Telescope

SKILLS

Computer: MATLAB, Siemens NX, Solidworks, Creo Parametric, FEMAP/NASTRAN, ABAQUS, ANSYS Mechanical & Fluent, LaTeX, HTML5, TensorFlow, some experience in Python, C and C++

ACTIVITIES

Member, BU Rocket Propulsion Group
Peer Mentor, Kilachand Honors College
President/Co-Founder, BU Irish Association
Trained Piano Accompanist and Organist