LIAM A. WARD

liamward@bu.edu | (267) 353-4299 | 2007 Church Rd, Flourtown, PA 19031

EDUCATION

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
- Tau Beta Pi Engineering Honor Society
- Kenneth R. Lutchen Distinguished Research Fellowship

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

EXPERIENCE

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.

Research Assistant — October 2019 – March 2020
Unsteady Fluid Mechanics & Acoustics Laboratory, Boston University College of Engineering — Boston, MA

- Debugged a JR3 force/torque load cell to collect data from a quadcopter to inform a model for control of micro aerial vehicles under aerodynamic and physical contact interactions.

PROJECTS

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

- 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.

"Torch Igniter," BU Rocket Propulsion Group — May 2020 – Present

- Designing a N_2O/IPA torch igniter featuring regenerative cooling and ox dump in Solidworks.
- Used NASA CEA and GDL PROPEP to research propellants and characterize ignition conditions.

"IREC Team Lead," BU Rocket Propulsion Group — August 2020 – Present

- Led and organized a team of 15 new members in the design of a high-power rocket with a 10,000 ft apogee and COTS solid rocket motor competing in the Spaceport America Cup 2021.

Additional Projects: High Power Rocket, Horn Antenna Radio Telescope, 3-Axis Camera Boom, Nose Cone Trade Study

SKILLS

Computer: MATLAB, Siemens NX, Solidworks, Creo Parametric, FEMAP/NASTRAN, ANSYS Mechanical, LaTeX, MS Office, HTML5, TensorFlow, some experience in Python, C and C++
Language: Conversant in Spanish

ACTIVITIES

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