Taylor Peterson

Aerospace Engineering

Email: tpeterson5@knights.ucf.edu
Phone: (262) 994-4862
LinkedIn: https://www.linkedin.com/in/tpeterson5/
Website: https://taylorpeterson5.github.io

EDUCATION

08/2021 - 5/2026	**University of Central Florida, PhD,** *Aerospace Engineering*
09/2017 - 05/2021	**Carthage College, Bachelor of Arts,** *Physics Major, Math Minor*

STUDENT RESEARCH EXPERIENCE

8/2021 - Present

Graduate Researcher
Using Star-CCM+ to create CFD simulations of microfluidics in low-gravity to study osteoporosis. Researching bone loss in humans in microgravity to assist in CFD work and in lab experiments. Fabricating the devices out of PDMS for lab fluid flow experiments. This experiment will fly on Blue Origin's New Shepard in Summer 2022.

6/2021 - 8/2021 & 6/2020 - 8/2020

NASA Kennedy Space Center Intern - Engineering
Worked with Engineers at NASA to design a payload implementing a low-gravity fuel gauging method. Used Autodesk Inventor to design various aspects of the payload for prototype testing. Used Inventor Nastran to perform modal analysis on a tank at different fills.

9/2019 - 5/2021

Data Acquisition and Analyst Lead
Designed, built and tested a research payload that implements MPG and a Propellant Management Device to study fluid behavior at low fill fractions inside modeled propellant tanks in low-gravity. Used Autodesk Inventor to help design the payload to fit inside a double payload locker for flight on New Shepard, and was tested on a parabolic flight campaign.

9/2019 - 5/2021

Lead Mechanical Engineer
Designed a research payload to predict equilibrium liquid configuration for six capillary flow geometries in 0g. Used Autodesk Inventor for payload design and performed CFD simulations in SimFlow of geometries. Preformed stress testing on support structures. Developed and presented various conceptual, preliminary, and critical design reviews.

9/2018 - 12/2020

Mission Team Lead, Lead Mechanical Engineer
Designed, integrated, and tested a set of Helmholtz Coils to generate a varying magnetic field controlling a metallic alloy disc inside of a modeled propellant tank. Assisted in design of support structures for Helmholtz Coils using SolidWorks.

2/2018 - 5/2021

Mission Team Lead, Lead Data Acquisition and Analyst, Lead Mechanical Engineer
Built a research payload implementing MPG for microgravity testing. Created CFD simulations of propellant tanks and used Finite Element Analysis to predict resonant frequencies of the tanks in 1g and 0g. Used MATLAB to generate Frequency Response Functions from ground and in-flight data. This has flown on New Shepard twice in 2019.

PUBLICATIONS & AWARDS

2/2022

Peterson, Taylor, "Propellant Mass Gausing via Modal Analysis on the International Space Station." *Proceedings of the 31st Wisconsin Space Conference*, 2022, https://doi.org/10.17307/wsc.v1i1.336

2/2020

2020 "Move it!" Lemelson-M.I.T. Student Prize Awardee
Awarded the Lemelson-MIT Student Prize with MPG against top schools and surpassed ~200 applicants.

9/2019

Peterson, Taylor *et. al*, "Modal Propellant Gauging in Microgravity." *Proceedings of the 29th Wisconsin Space Conference,* 2020, https://doi.org/10.17307/wsc.v1i1.300

9/2018

Peterson, Taylor *et. al*, "Modal Propellant Gauging - Blue Origin Payload." *Proceedings of the 28th Wisconsin Space Conference*, 2019, https://doi.org/10.17307/wsc.v1i1.243