Katie Herrington

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EDUCATION

B.S.E., Aerospace Engineering: Astronautics August 2020 - May 2024
Arizona State University, Tempe, AZ 4.0 GPA

TECHNICAL SKILLS

Design and Modeling Tools: ANSYS, SOLIDWORKS, Siemens NX, Dewesoft, Fusion 360, Microsoft Office, KiCad, Teamcenter
Shop Skills: Cryogenic Handling, Torque/Krytox Trained, TIG/MIG Welding, Miter Saw, Soldering, Dremeling, 3D Printing
Programming: Python, MATLAB, Arduino

PROFESSIONAL EXPERIENCE

Stoke Space Technologies Fluids Intern – *Kent, WA* May 2024 – August 2024

- Owned fill/drain line system design for LOX and LH2 from the outer vehicle QD panel to tanks on the second stage of Nova
- Owned main feedline system design for LOX and LH2 from vehicle tanks to turbopump inlets on the second stage of Nova
- Routed above fluid lines in vehicle and decided placement of six valves and their pneumatic actuators
- Performed ANSYS simulations on a variety of bellow types to analyze line stress and axial, lateral, and torsional deflections of bellows under thermal and pressure loading conditions, and informed turbopump placement on vehicle
- Selected and ordered final bellows informed by simulation
- Designed a sump to integrate LOX and LH2 feedlines and fill/drain lines in a vertically constrained space

Blue Origin New Shepard Test Ops Intern – *Kent, WA* May 2023 – August 2023

- Led and completed a test campaign to acceptance test solenoid valves for use on the New Shepard reaction control system
- Conducted an internal and external leakage test up to 3600 psi, a pull-in and drop out voltage test, and vibration testing
- Built test setups from given P&IDs and connected pressure transducers, flow meters, and a power supply to a DAQ
- Proof tested up to 4050 psi and conducted an internal and external leakage test of piloted check valves
- Qualification tested a flight ball latch system which included thermal cycling and blast testing

ASU NASA Space Grant Intern - *Tempe, AZ* August 2021 – May 2022

- Wrote python scripts to analyze data from the EDGES radio telescope to determine the effect of the Earth's ionosphere on observations of radio waves from astronomical sources
- Presented results and difference spectrum plots at the Arizona NASA Space Grant Statewide Symposium

National Science Foundation University of South Florida Applied Physics Research Intern -*Tampa, FL* May 2021 – July 2021

- Designed and built an optics setup to successfully use remote random resonance Raman lasing to collect stronger Raman of beta-carotene than through regular Raman techniques
- Optics setup included focusing lenses, green notch filter, spectrometer and green 532 nm pulsed laser
- Project was intended to be for use on a rover such as the Mars Perseverance rover, which uses UV and X-ray spectroscopy
- Presented research and a poster at the University of South Florida showcase at the end of the program

PROJECTS

Sun Devil Rocketry:

Propulsion Team Lead and President May 2023 – May 2024

- Overseeing and managing all activities of a technical student organization with three rocket propulsion teams, three amateur rocketry teams, a K-12 outreach program, a Spaceport team, and over 100 members
- Responsible engineer for the build, test, and hot fire of ASU's first liquid rocket engine
- Leading a group of 15+ students in the design, model, manufacture, and launch of ASU and SDR's first liquid rocket
- Designing this rocket to utilize a blow down system to meet the mass budget using ethanol and Lox as propellants
- Designing a combustion chamber/nozzle to produce 500 lbf of thrust with film cooling and an impinging injector

Liquids/Test Ops Sub-Team: January 2022 – May 2024

- Hot firing the first bipropellant liquid rocket engine at ASU capable of 405 lbf of thrust and 5 seconds of burn time
- Conducting liquid rocket engine fluid system tests with water to characterize mass flow rates at different tank pressures
- Conducting hydrostatic tests of injector to test bolt strength and prevent separation of the injector plates
- Developed an ANSYS Fluent simulation to model heat transfer of ball valve, coupling, and servo motor in an electromechanical valve assembly for use in a liquid rocket engine
- Wrote a script to predict mass flow rate out of component testing apparatus for given tank pressure using head loss