BRIAN HIGGINS

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San Diego, CA

Detail oriented and results focused student with experience in CAD and design optimization of eVTOL aircraft. Seeking a position that focuses on combining engineering principles and programming to develop GNC operations.

Skills

- Python, C, MATLAB, Simulink
- eVTOL Design Optimization
- Propellant Feed System Design, P&IDs
- CAD Software: Inventor, Solidworks, OpenVSP
- Prototyping and Reverse Engineering
- Fabrication & Troubleshooting
- UI Design and Documentation
- CAM (Fusion 360) & CNC

Education

UNIVERSITY OF CALIFORNIA, SAN DIEGO 2020 - 2024

B.S. Aerospace Engineering, Minor in Mathematics, GPA: 3.4

Experience

SEDS UCSD 2023 - Present

Hayla Project, Fluids/Plumbing Team

- Programmed an iterative Python script to provide a scalable solution to rocket design and engine throttling.
- Design (P&ID) and fabrication of ground support equipment (GSE) for fueling of rocket. Testing with cryogenics.
- Design of unique valve mounting system for rocket plumbing. CAM/CNC of modular, lightweight mounting solution.
- Developed fluids system in rocket, selection of valves/manifolds, CAD and fabrication of propellant fueling system.
- Fabrication of plumbing hardware and composite structures including fin can, nosecone, and aeroshell.
- Collaboration with structures and avionics teams to define design parameters and develop a cohesive final design.

UCSD LSDO LAB 2021 - Present

Undergraduate Researcher

- Awarded “Best Undergraduate Student Poster”, NASA ULI 2023 Annual Review Workshop.
- Optimized propellor design using Python programming and lab developed optimizers on a reverse engineered Amazon Mk-27 delivery drone modeled in NASA’s OpenVSP CAD software.
- Helped develop competetive optimization software using benchmarking with problems drawn from pyCUTEst. Utilized Jupyter Sphinx to complete comprehensive documentation of optimization software.
- Familiarity with Python, Linux, GitHub, OpenVSP, AVL aerodynamic simulation and results oriented research.

REOTEMP INSTRUMENTS 2022 - 2023

Engineering Intern

- Sensor calibration and testing, development and integration of large scale TC and PT sensor test and evaluation.
- Design of creative solutions with CAD, 3D printing, and the creation of custom fixtures for production and testing of thermocouples, pressure transducers, and data acquisition and processing for MODBUS registries.
- Extensive experience with 3D modeling/CAD (Inventor, Solidworks, Fusion 360, AutoCAD), engineering drawings, and CNC machining. Custom wiring and electrical harness development for projects. Experience using Atlassian suite.
- Design and implementation of electronics including PLCs, solenoid valves/relays, servomotor controllers, and UI development for various company products and custom-built shop fixtures.
- Programmed (C, VBA) a uniquely designed CNC machine to automate the construction of temperature sensors.
- Design and fabrication of epoxy fill tanks and various pneumatic fixtures to improve manufacturing efficiency.
- Development, assembly, and testing of fixtures for streamlining production processes with a focus on ease-of-use.

Extracurriculars

BOY SCOUTS OF AMERICA 2015 - 2020

Troop 676, Eagle Scout