Hannah Spangle

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OBJECTIVE

Engineering internship or co-op where I can apply aerospace research & work experience, student project teams experience, and strong leadership & technical communication skills.

EDUCATION

The Ohio State University | Columbus, OH — May 2025

B.S. Aerospace Engineering with Honors, Minor Robotics and Autonomous Systems — GPA (4.0 Scale): 3.525

WORK EXPERIENCE

Research Assistant | SOAR Lab, Columbus, OH — January 2024 – Present

- Designed a controlled testing environment for autonomous systems/swarm micro-UAVs to navigate urban environments, programmed flight paths for swarm patterns, and developed detect & avoid collision algorithms.
- Optimized Python code for UAV flight planning within the testing environment & improving on premade frameworks to create 8 new flight patterns using 2-4 drones at once.
- Developed UAV preflight check to minimize damage to UAV and improve testing data with hardware prechecks & routine for initializing the program. Improved testing success by eliminating random human errors.

Teaching Assistant | Fundamentals of Engineering, Columbus, OH — August 2022 – December 2023

- Taught fundamentals of engineering course sequences including labs, coding assignments, & engineering projects.
- Lead exam reviews for students & presented discussion / technical materials for improved exam performance.
- Wrote & presented guide for using the Microsoft Suite that will be permanently added by the department for courses.

Research Assistant | Aerospace Research Center Gas Turbine Laboratory, Columbus, OH — May 2022 – January 2023

- Researched the effects of blade tip rubs on jet engine performance to improve engine efficiency & service life.
- Analyzed frequency and velocity test data to identify shaking problems in the blades & impact on performance.
- Assembled/tested circuit for thermal camera trigger card used in official test runs, quickly adapted to new situations.
- Optimized and improved upon code in MATLAB to calculate necessary incursion depths for blade rub shoes.

ENGINEERING PROJECTS & LEADERSHIP

Diamond Grove Scholars | Networking & Career Development Director — May 2023 – Present

- Pioneered brand new networking/career development program, DGS Constellations, providing our members with opportunities to network/connect with industry professionals & provide pathways into the aerospace industry.
- Assembled, programmed, wired, & tested a 6DoF robot arm for harvesting hydroponic crops in microgravity.
- CAD modeling designs for a CubeSat rocket propulsion system for servicing space stations with Sierra Lobo.

Buckeye Space Launch Initiative | Community Outreach Chair — August 2021 – Present

- Designed collapsible wings and jettison system of self-rotating quadcopter HELO payload of rocket (23-24).
- Designed deployment system of camera payload of rocket (22-23).
- Tested airfoil designs for HELO with simulations in ANSYS and building prototypes for optimal lift vs reduced area.
- Tested CFD models of rocket nozzle designs for projected flight altitudes for Spaceport America Cup competition.
- Lead STEM outreach initiatives with interactive rocketry themed activities & mentorship programs to promote STEM education, retention, and early interest in the space industry, have engaged over 400 students.

SKILLS & COURSEWORK

- **Software**: ANSYS, CFD, SolidWorks, CAD, Simulink, UAS, MATLAB, C/C++, Python, VSC, ROS2, GitHub, Microsoft
- **Coursework**: Astronautics, Heat Transfer, Gas Dynamics, Aerodynamics, Structures, Controls, Dynamics, Numerical Methods, Applied Machine Learning, Electrical Circuits, Real Time Robotics, Technical Writing, Fund. UAS
- **Skills**: Hardware, machine shop, teamwork, public speaking, problem solving, 3D printing, drone safety certification

HONORS

- Aspiration for Women's Advancement & Retention in Engineering & Sciences Program — September 2023 – May 2024
- Sigma Gamma Tau Aerospace Engineering Honorary — March 2023 – Present
- Lambda Psi Minority Engineering Honorary — March 2023 – Present