Alexander Haws

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EDUCATION

Master of Science in Aerospace Engineering Urbana-Champaign, IL
University Of Illinois, Grainger College of Engineering May 2023
Bachelor of Science in Mechanical Engineering, Aerospace Concentration Evanston, IL
Northwestern University, Robert R. McCormick School of Engineering June 2022

HONORS AND GRANTS

Tau Beta Pi Honor Society (Top 1/8th of Graduation Class), University of Illinois (Spring 2023)
Summer Internship Grant Program Recipient, Northwestern University (Summer 2021)
Academic Year Undergraduate Research Grant Recipient, Northwestern University (Fall 2021)

TECHNICAL SKILLS

Programming Languages: C++, C, Python, MATLAB
Software: Ansys, Ansys Fluent, Abaqus, NX, Solidworks, Excel
Additional: Robotics, Statistics and Data Analysis, Optimization, Finite Element Analysis, Advanced Fluid Mechanics, Propulsion

PROFESSIONAL EXPERIENCE

Systems Engineer | *Leonardo DRS Land Systems* Aug. 2023 – Present
- Built a MATLAB simulation of an active protection system; integrating radar, command and control, gimbal systems, and fragmentation countermeasures, applying Monte Carlo and numerical techniques to simulate the probability of hard kill of UAVs and other threats.
- Contributed to C-UAS system designs by conducting specification efforts, trade studies, and data analysis.
- Supported M-LIDS C-UAS 2.1 program maturation through system integrations, testing events and customer engagements.

PROJECTS

Quadcopter | *Independent Project* Sep. 2023 – Present
- Programmed RP2040 Microcontroller in C++ to function as flight controller for a quadcopter unmanned aerial vehicle.
- Derived state-space equations and control algorithms–fusing data from multiple sensors.
- Designed and implemented a ground station graphical user interface to allow control of quadcopter through a vehicle on-board Raspberry Pi connected over UART to the flight controller, allowing remote control of the vehicle.

Computer Vision Seed Tracking System | *UIUC Turbulence and Complex Flow Lab* Aug. 2022 – Jan. 2023
- Derived equations to model how the 2-D video data mapped onto 3-D real world coordinate system.
- Built a python program which found the camera focal length and optical centers through triangulation of points taken by each camera.
- Mapped out data graphically to demonstrate the paths of the seeds in the testing environment.

Rotor Powered Rocket Lander | *Senior Capstone Project* Jan. 2022 – June 2022
- Collaborated with team to build an autonomously controlled drone capable of being stowed inside a rocket body with deployable arms and legs.
- Constructed a control system which managed the communication between electrical components such as the sensors, flight controller, Raspberry Pi and GPS.
- Derived equations and models to define design requirements per customer's needs.

Computational Fluid Mechanics Research Project | *Undergraduate Research* Mar. 2021 – Mar. 2022
- Developed numerical models to demonstrate how rotating Cricket Balls will act depending on the scenario variables using MATLAB.
- Devised a user-interface on MATLAB which allowed the user to change variables such as ball rotation and velocity and observe how those factors affected the trajectory and bounce.

INTERESTS

Hobby UAV Design, Hiking, Camping, Ultrarunning, Soccer