Marcus Esposito

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EDUCATION

Cornell University, *College of Engineering, Sibley School of Mechanical and Aerospace Engineering* Ithaca, NY
Candidate for Master of Engineering, Aerospace Engineering Anticipated Graduation: December 2024

Cornell University, *College of Engineering, Sibley School of Mechanical and Aerospace Engineering* Ithaca, NY
Bachelor of Science, Mechanical Engineering Graduation Date: May 2024
GPA: 3.9; Magna Cum Laude, Tau Beta Pi Engineering Honor Society, Cornell Engineering Leadership Certification Program

Clearance: U.S. Government Security Clearance (DoD, Secret) 2022-2032
Relevant Courses: Flight Dynamics, Propulsion, Aeronautics, System Dynamics, System Architecture, Mechatronics, Automotive Engineering

TECHNICAL EXPERIENCE

NASA Ames Research Center Moffet Field, CA
Incoming Rotorcraft-Aeromechanics Intern Starting June 2024

- Use computational methodology to research and develop models to predict aerodynamic, aeroacoustic, and dynamic rotorcraft behavior
- Author and present a final paper and poster to communicate and integrate project results and findings with NASA and eternal stakeholders

Alpha CubeSat Ithaca, NY
Integration and Testing Engineer September 2023-Present

- Manufactured critical internal and external ISS CubeSat launcher integration components to comply with NASA-dictated requirements
- Performed thermal vacuum testing of final assembly and analyzed results to determine component function and survivability in flight
- Revised CAD model dimensions and mass parameters to facilitate MATLAB modeling of system behavior in a low-gravity environment
- Assembled final flight and spare satellites for launch in a laboratory clean room environment to prevent flight-affecting contamination

Combat Robotics at Cornell Ithaca, NY
Subteam Lead and Mechanical Engineer - Sportsman Subteam February 2021-Present

- Developed, manufactured, and assembled 2 innovative, strategic, and robust 12lb. combat robots for tournament competition
- Researched, designed, and implemented robot's robust, modular circuits to meet load, control, repairability, and safety requirements
- Improved robot drivetrain and weapon torque performance by ~2.5x through testing multiple different shaft-component connections
- Delegated tasks to 8 teammates based on interest and skill proficiency and onboarded 4 new members in 2 weeks during manufacturing

General Dynamics Electric Boat Groton, CT
Design and Engineering Intern for VA Class Submarine Main Propulsion Unit May 2023-August 2023

- Authored resource guides for general structural calculations and troubleshooting systems to optimize knowledge transfer and retention
- Created a technical documents database to improve document retrieval efficiency improving response time to emergent manufacturing issues
- Generated technical dispositions to resolve shipyard construction issues, facilitating continued production of VA Class Submarines
- Calculated and compiled hydraulic system modelling parameters and constants to effectively model system behavior and control methods

Bounce Imaging Waltham, MA
Product Design Engineering Intern May 2022-August 2022

- Designed, prototyped, and developed a K9 camera mount, compatible with current products, and with 10% less parts than previous models
- Implemented a 20% quicker assembly and procurement times for K9 camera mounts, and a 25% higher profit margin than preceding designs
- Prototyped a portable (<5lb.), remotely controlled 360° camera robot to interface with current product to revolutionize situational awareness
- Collaborated with fellow engineers to document projects and facilitate projects' development and utilization after internship

LEADERSHIP EXPERIENCE

Cornell University Naval Reserve Officers Training Corps Ithaca, NY
Battalion Operations Officer and 2/C Midshipman September 2020-May 2023

- Succeeded in a challenging ROTC environment while maintaining rigorous physical, academic, and professionalism standards
- Led a team of seven to plan and schedule all battalion activities, collaborating with active-duty naval staff to run effective training events
- Coordinated events between Cornell ROTC's branches as part of a joint-service brigade staff, building camaraderie and cohesion

SPECIALIZED SKILLS

Programs: Fusion 360 (proficient), Solidworks (proficient), Inventor (intermediate), LaTeX (intermediate), Microsoft Office Suite (intermediate), ANSYS Fluids, Finite Element Analysis, Geometric Dimensioning & Tolerancing
Languages: Python, MATLAB, G-Code, C++, C, R (all intermediate), HTML, CSS (beginner)
Manufacturing: Mill, Lathe, 3-Axis CNC machining, mechanical assembly, sheet metal fabrication, 3D printing (SLA and FDM), Laser Cutting
Interests: Machining (Manual, CNC Mill, and EDM), Combat Robotics, Star Wars, and Hobby Model Making