Nathan Stephens | Melbourne, Florida | (407) 893-2708
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Education

Bachelor of Science in Aerospace Engineering (GPA: 3.35) | May 2026
Florida Institute of Technology, Melbourne, FL

Relevant Experience

Senior Design Capstone - Atmospheric Satellite Trajectory Repositioning Attachment
January 2025 – Present

- Designing and implementing control system architecture for a deployable drag device to accelerate orbital decay of Cube Satellites (CubeSats)
- Developing and running orbital maneuver and deployment simulations using MATLAB and Simulink to evaluate system performance and reliability
- Exploring the limits of computational fluid dynamics (CFD) analyses in ANSYS Fluent in predicting aerodynamic drag behavior in the Low Earth Orbit (LEO) environment
- Programming motor control algorithms in C++ to command and coordinate drag device deployment mechanisms

Satellite Attitude Determination & Control System (ADCS) Simulator
September 2025 – December 2025

- Designed and simulated a 3-axis spacecraft ADCS for a LEO vehicle using quaternion-based attitude dynamics
- Modeled reaction wheel (RW) dynamics, sensor noise, and environmental disturbances, and evaluated stability via angular velocity and quaternion convergence
- Implemented B-dot detumbling control with magnetorquers and a Lyapunov-based RW controller for nadir pointing
- Validated detumbling performance and pointing accuracy through time-domain simulation in MATLAB/Simulink

Payload Carrying RC Airplane
January 2025 – May 2025

- Designed an RC airplane to carry an 8 Oz payload while ensuring stability and maneuverability
- Developed control system code using MATLAB and Simulink for lateral and longitudinal augmented stability, implementing algorithms to enhance the aircraft's dynamic stability and handling characteristics
- Created CAD models for the aircraft structure using Creo to support conceptual design and structural layout
- Collaborated with a team of 8 to meet milestone deadlines, including preliminary design, detailed design, and manufacturing plan reports
- Utilized OpenVSP to perform aerodynamic modeling and initial sizing analyses, informing design decisions and performance estimates

Space Mission Proposal: LEO SAR Anti-Piracy Satellite
January 2025 – May 2025

- Cooperated with a team of 7 to develop a comprehensive mission proposal for a conceptual Low Earth Orbit (LEO) Synthetic Aperture Radar (SAR) satellite designed for anti-piracy operations
- Selected and implemented communication and avionics subsystem components for ground station links and inter-satellite links to enable reliable data transmission
- Prepared a formal presentation to deliver findings and justifications to faculty evaluators

Achievements

- Dean's List (GPA > 3.5) Fall 2022, Spring 2025

Organizations

- President of the Caribbean Student Association (2024)
- Member of the American Institute of Aeronautics and Astronautics
- Member of the National Society of Black Engineers