Sergio Monteiro

Aerospace Engineer

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EDUCATION

Master's in Aerospace Engineering | Embry-Riddle Aeronautical University
Daytona Beach, Florida, ***United States***
Concentration: Aerospace Guidance, Navigation, Dynamics & Controls
Completion: May 2023
GPA: 9.75/10.00

Bachelor's Degree in Aerospace Engineering | Embry-Riddle Aeronautical University
Prescott, Arizona, ***United States***
Concentration: Astronautics
Completion: May 2021
GPA: 9.83/10.00

WORK EXPERIENCE

Airbus Defense & Space
Avionics Systems Engineer in the Eurofighter Avionics Joint Team (AJT)
Warton, United Kingdom | September 2025 - Present

Part of the Fighters Communications System Integration Team (TADYC-1), waiting to be sent to the Eurofighter AJT based in Warton, UK.

- Responsible for the overall integration of all communications systems in Eurofighter platforms.
- Worked alongside the Eurofighter Consortium Partners in order to jointly define and produce all the Avionics System Level and SubSystem Level design and deliverables.

SENER Aerospace & Defense
GNC Engineer
Sevilla, Spain | January 2024 - July 2025

Technical responsible for Swarm Formation Control & Resource Management Work Packages in the European defense project SWAT-SHOAL, focusing on formation control, collision avoidance, task allocation and mission monitoring for a cooperative swarm of UUVs operating under degraded communication conditions.

- Led the design and implementation of advanced formation control algorithms using Matlab and Simulink. Developed leader-follower structures with waypoint tracking, virtual point navigation, and trajectory adjustments to maintain precise formations in dynamic underwater environments.
- Designed collision avoidance algorithms based on Cost Function Minimization and Potential Fields. Successfully integrated a pattern reconfiguration mechanism to allow UUVs to autonomously switch between formation structures during obstacle navigation.
- Developed resource management and task allocation algorithms for multi-UUV coordination. Implemented dynamic monitoring of UUV battery levels and automated task reassignment to ensure uninterrupted mission execution and safe homing protocols.
- Conducted extensive research on underwater vehicle dynamics and communication-degraded environments. Implemented Kalman filters and time-delay compensation methods to enhance navigation accuracy and formation synchronization in GNSS-denied scenarios.

Airbus Operations - Sogeclair Aerospace
Aerospace Configuration Management
Seville, Spain | July 2023 - December 2023

- Led and managed the entire change process lifecycle for Airbus programs including A320, A330, A340 and A350, ensuring successful implementation and MOD closure.
- Served as the TRS and SubTRS coordinator, effectively coordinating and reviewing technical solutions with the design office, overseeing associated documentation regarding Wing, Fuel, Auto-flight, and Surveillance systems of the Airbus aircraft.
- Organized and facilitated technical and decision meetings, covering agenda preparation, hosting, and meticulous minutes documentation, ensuring strict compliance with established change processes.
- Coordinated weekly meetings (CRRs) to assess Change Request (CR) readiness for upcoming Kick-off Boards (KoB), Maturity Boards (MB), and Decision Boards (DB).

RELEVANT EXPERTISE

- Spacecraft Dynamics & Controls Design
- Advanced Orbital Mechanics
- Attitude Determination & Control
- Kalman Filtering
- Linear & Nonlinear System Analysis
- Adaptive Control of AE Structures
- Closed-Loop Control Design
- Discrete Control Theory
- Systems Engineering
- GNC Algorithm Design
- Data Acquisition
- Modern Control Theory

SKILLS

Computer: MATLAB, SIMULINK, GMAT, CATIA V5, ANSYS, NASTRAN, VHDL, LabView.

Languages: English, Spanish, French, Portuguese.

PROJECT EXPERIENCE

Eurofighter - Airbus Defense & Space

- Responsible for the overall integration of all communications systems in the Eurofighter platforms.
- Responsible for the Data Link (MIDS, VMF, CESMO, JREAP, etc.).
- Contractual Interoperability Requirements Definition.
- Generation of the Level 2 Design (Functional Requirements, Interfaces and Protocols), DOORS Requirements and Traceability and Hazard Analysis.

SWAT-SHOAL - SENER Aerospace & Defense

- Led critical aspects of the SWAT-SHOAL European defense project, focusing on the design and optimization of GNC algorithms.
- Designed formation control algorithms enabling UUV swarms to maintain spatial coordination while optimizing movement and reconfiguring formations based on environmental constraints.
- Developed and implemented Cost Function Minimization and Potential Field algorithms for reactive collision avoidance, ensuring robust navigation in dynamic and cluttered underwater environments.
- Designed a task allocation algorithm to dynamically assign missions based on UUV proximity, battery levels, and task complexity, ensuring mission continuity and energy efficiency.
- Developed algorithms for reconfiguration of the swarm shape during collision maneuvers, ensuring safe navigation through complex clustered environments.

Near Earth Object (NEO) Mission - ERAU

- Planned a mission to locate and visit a NEO for future outer-space mining purposes.
- Used MATLAB to estimate the minimal delta V to achieve the desired orbit while optimizing fuel consumption.
- Made use of NASA's software GMAT to successfully simulate the transfer orbit, rendez-vous maneuver and return trajectory mechanics of the spacecraft.

Satellite Attitude Dynamics Controller - ERAU

- Developed a spacecraft attitude controller using MATLAB and SIMULINK to aim a satellite at different ground stations on earth.
- Applied GNC principles to estimate and control the attitude of the spacecraft.
- Used optimal control to minimize the use of torque and reduce the cost function to stabilize the satellite, which was subjected to perturbing unknown forces.
- Implemented a bank of Kalman filters to reduce the incoming noise captured by the sensors of the simulated satellite.

Adaptive Satellite Vibration Dissipation Controller - ERAU

- Mathematically analyzed and modeled the non-linear cyclic vibrations present in the telemetry components of a satellite.
- Successfully designed and implemented in SIMULINK an adaptive controller capable of mitigating these vibrations to reduce the risk of mechanical failure.

GEPETO Rover - ERAU

- Worked as a part of a team to design and build a rover capable of collecting data and relaying it back to a home station within a range of 100 km.
- Responsible for telemetry subsystem and data acquisition. Developed a MATLAB code capable of interpreting both analog and digital data collected by a LabJack through telemetry sensors.
- Designed in CATIA V5 the main framework, solar panels, wheels and suspension systems. Revised power and stress calculations and successfully

Spacesuit Lunar Dust Mitigation - ERAU

- Worked as part of a team to design, build and test an active system that mitigates lunar dust accumulation on spacesuits.

HONORS & LEADERSHIP

Embry-Riddle Aeronautical University | United States

- Phi Kappa Phi Honor Society (2021 - Present)
- Tau Beta Pi Association of Engineering (2019 - Present)
- Sigma Gamma Tau Honors Society of Aerospace Engineering (2018 - Present)
- Captain of Embry-Riddle Men's Soccer Team (2017 - 2023)
- Public Relations of the Student-Athlete Advisory Committee (2019 - 2023)
- Student Graduate Teacher Assistant (2021 - 2023)

AWARDS

Embry-Riddle Aeronautical University | United States

- Best AE Undergraduate Student (2021)
- Outstanding AE Graduate (2021)
- Top Student Scholar Award (2021)
- Top 10 NAIA Daktronics Scholar Athletes (2019 - 2023)
- Presidential scholarship (2017 - 2023)
- Academic scholarship (2017- 2023)
- Soccer scholarship (2017 - 2023)
- Dean's list (2017 - 2023)