Mehdi Muzaffari

U.S. Citizen | 447 Campus Dr, Amherst, NY
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🔗 www.apexorbitals.com | 🏫 University at Buffalo | M.S. Aerospace Engineering | GPA: 4.0

Professional Summary

Spacecraft Systems Engineer with hands-on experience in CubeSat GNC design, avionics integration, and aerospace software development. Strong background in spacecraft dynamics, orbital mechanics, and embedded systems. Skilled in hardware/software integration, risk assessment, compliance documentation, and mission readiness reviews. Passionate about advancing autonomous spacecraft technologies and resilient control systems.

Education

M.S. Aerospace Engineering – University at Buffalo (08/2024 – Present)
Thesis: Intelligent Attitude Determination & Control Systems

B.S. Aerospace Engineering – University at Buffalo (01/2020 – 05/2024)
Senior Design: Developed autonomous CubeSat stabilization system

Technical Experience

Teaching Assistance – Buffalo, NY | 01/2024 – 01/2025

- Led MATLAB recitations on dynamics, orbital mechanics, and control
- Mentored senior design teams on CubeSat stabilization systems
- Guided control design, integration, and technical writing
- Assisted with grading, labs, and student support

High Energy Physics Lab – Buffalo, NY | 01/2024 – 01/2025

- Applied OmniFold with TensorFlow to correct particle jet data
- Matched gen/reco jets and analyzed ΔR distributions
- Used Python and ROOT for data processing and visualization

Guidance, Navigation & Control (GNC) – Buffalo, NY | 01/2022 – 01/2024

- Developed ADCS algorithms for CubeSat attitude control
- Integrated NASA cFS modules for flight software testing
- Simulated orbit and attitude dynamics in MATLAB/Python
- Supported hardware-in-the-loop testing for validation

NASA L'SPACE Academy – Remote | 01/2022 – 01/2023

- Collaborated on mission design for a Mars CubeSat concept
- Performed trade studies on propulsion, power, and comms
- Created systems engineering docs and technical reviews
- Presented design work to NASA mentors and peers

OfficeMax – Buffalo, NY | 01/2020 – 08/2024

- Configured and maintained ERP/Infor SX.e for sales and inventory systems
- Built Excel automation with formulas and macros to streamline reporting
- Applied SQL queries and data analysis tools for stock and order tracking
- Supported staff with system integration and workflow optimization

Technical Skills

Help Desk / Systems Support: Windows OS, Office 365, Active Directory, Ticketing (Jira, Freshservice), Remote Support Tools
Networking / Infrastructure: Network Troubleshooting, Hardware Provisioning, Access Control, Basic Networking
Software & Programming: Python, MATLAB, Simulink, SQL (queries), Git, Visual Studio, C++
Systems Engineering & Compliance: SOX-aligned practices, Internal Audits, SOPs, Change Control, Asset & Config Management

Certifications & Highlights

- NASA L'SPACE Mission Concept Academy (2023): System Design & Documentation
- CodeAcademy (2025): Web Development Certificate
- Senior Capstone: Built CubeSat fault recovery software in MATLAB
- Technical Writing & Documentation Trainer – TA for embedded hardware/software integration