Sean McCurry

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EDUCATION

University of Maryland — College Park, MD
B.S., Aerospace Engineering, **GPA: 3.86** — Received May 2025
M.S., Aerospace Engineering, **GPA: 3.77** — Anticipated May 2026
Honors and Awards: ODK Leadership Honors Society.
Relevant Coursework: Dynamics, Flight Software Systems, Astrodynamics, Control of Aerospace Systems, Linear System Dynamics, Space Navigation and Guidance, Decision Making Under Uncertainty, Engineering Optimization.
Clearance: SECRET (Active).

TECHNICAL SKILLS

Programming: Python, MATLAB, Julia, C++.
Software: Git, PyTorch, 3D CAD, Docker, Microsoft Office.

TECHNICAL EXPERIENCE

UMD Machine Learning for Dynamical Systems Laboratory — College Park, MD
Graduate Researcher — Sept. 2025 – Present
- Investigating novel mechanisms for representing complex lighting interactions between radiance field models of spacecraft to aid in optical navigation and object detection.

Undergraduate Researcher — Jan. 2025 – May 2025
- Constructed a reinforcement learning environment using OpenAI Gymnasium to evaluate the adaptive capabilities of on vs. off-policy agents in a spacecraft rendezvous scenario.
- Performed a sensitivity analysis examining the effect of rewards function complexity on agent behavior.
- Synthesized analyses and results into an IEEE conference-style paper to showcase project impact.

Johns Hopkins University Applied Physics Laboratory — Laurel, MD
Guidance, Navigation, and Control Intern — Jun. 2025 – Present
- Implemented data processing and model training functionality into a Pythonic machine learning framework to enable prediction and generation of physically constrained, time series trajectories from finite-length time series windows.
- Constructed a transformer neural network for sequential prediction of time series trajectories, meshing a novel ML architecture with an existing prediction pipeline.
- Initiated development of a MATLAB-based meshfree numerical solver to approximate solutions of multi-agent differential games for swarm-on-swarm engagements.

Comet Divers – UMD Aerospace Capstone Project — College Park, MD
Avionics and Flight Software Systems Lead — Sept. 2024 – May 2025
- Led a team of 6 engineers to formulate and propose a design for the avionics and GNC subsystems of a high-velocity, fleet-based comet flyby mission in collaboration with the NASA Goddard Space Flight Center.
- Performed trade studies and performance analyses on ADCS sensors and actuators to evaluate the efficacy of selected components and ensure fulfillment of mission requirements.
- Created a Monte Carlo simulation of our comet impactor spacecraft's terminal guidance phase.
- Presented our final iteration and won "Best Aerospace Project" award at UMD Engineering Capstone Design Expo.

Engineering Intern — Beltsville/Greenbelt, MD
MACH33 Engineering — May 2024 – Aug. 2024
- Designed and constructed a heavy-duty RC sand rover to transport 150lbs of equipment.
- Manufactured 4 custom wheel hubs, 6 wheel spacers, and 4 hex driveshaft adapters via CNC vertical mill, and soldered 20+ electronic components to ensure appropriate connectivity of motor and control systems.

NASA Goddard Space Flight Center — May 2024 – Aug. 2024
- Worked with the mechanical team of the Mars Organic Molecule Analyzer (MOMA) to perform 3-dimensional vibration testing on MOMA's mass spectrometer.
- Supported thermal vacuum chamber (TVAC) setup and laser test-fires for the Atmospheric Lidar for Clouds and Aerosol Transport (ALICAT) project, working closely with senior engineers to facilitate safe testing conditions.

LEADERSHIP EXPERIENCE

UMD Esports — College Park, MD
Team Manager — Feb. 2023 – May 2025
- Managed team operations on local and national levels in a rapidly growing university funded program.
- Supported program and league administrators of 4 collegiate Esports circuits, including the Big10 Esports Conference.

Theta Tau – Professional Co-Ed Engineering Fraternity — College Park, MD
Vice President — December 2023 – May 2024
- Co-lead weekly fraternity-wide meetings for 85+ engineers to discuss chapter business and operations.
- Presided over the operations of 39 chair positions to ensure all fraternity events and activities are run appropriately.
- Planned and executed 25 professional, service, and social events throughout the semester.