Alessandro Mordasiewicz

U.S. Citizen
amordasiewi1 [at] gmail [dot] com alessandromordasiewicz.com linkedin.com/in/alessandro-mordasiewicz

Education

Purdue University West Lafayette, IN
M.S. Aeronautics and Astronautics January 2027 - Present
Major Concentration: Astrodynamics | *Minor Concentration:* Autonomy & Control GPA: 4.0/4.0

B.S. Aeronautical and Astronautical Engineering August 2022 - May 2026
Concentration: Astrodynamics | *Minor:* Computer Science GPA: 3.4/4.0

Relevant Coursework: Orbit Mechanics, Space Traffic Management, Spacecraft Attitude Dynamics, Applied Control in Astronautics, Applied Stochastic Processes, Control System Analysis, Geometric Control Methods

Interests: Spacecraft & launch vehicle GNC, astrodynamics, mission analysis/design, modeling & simulation, software engineering

Professional Experience

GNC Intern, Mission Design May 2026 - November 2026
Relativity Space *Long Beach, CA*

- Supported the Mission Design group in launch vehicle trajectory optimization productionization and day-of-launch tooling development for the Terran R medium-to-heavy-lift partially reusable launch vehicle.
- Responsible for the creation of launch window generation and evaluation tooling (Python).
- Enhanced robustness of second-stage guidance algorithm for inertial orbit targeting (Rust).
- Conducted preliminary launch vehicle collision avoidance and payload separation analyses (Python).
- Worked in conjunction with the Simulation team for several extensive 6DoF simulation improvements (C++/Python).
- Extensively used Git (via GitLab) for version control.

Flight Mechanics Intern May 2025 - August 2025
NASA - Marshall Space Flight Center *Huntsville, AL*

- Supported the NASA HLS guidance, navigation, & mission analysis group (EV42) under the ESSCA contract.
- Developed Python/MATLAB tools to enhance lunar DEM fidelity for hazard injection and lander tip-over analysis.
- Integrated enhanced lunar DEMs into a 6DoF landing dynamics simulation.
- Verified and validated HLS landing dynamics simulations by reconstructing the Apollo 11 landing.
- Developed a Python landing visualization tool, reducing generation time from 2 hours to 2-3 minutes.
- Extensively used Git (via GitHub) for version control.

Flight Dynamics Intern May 2024 - August 2024
Intelsat (now SES Satellites) *McLean, VA*

- Supported daily Flight Dynamics operations of over 70 active GEO satellites.
- Developed and maintained an interactive web application (Python, React) to analyze critical satellite parameters.
- Developed Python scripts for data visualization in operational flight dynamics software migrating to Linux.
- Evaluated a GPS-based position estimation method against existing state estimation systems for GEO satellites.
- Gained experience with Git for version control, enabling efficient collaboration and code management.

Aerospace Engineering Intern May 2023 - August 2023
Axiom Aerospace LLC *Chicago, IL*

- Compiled FAA certification packages including comprehensive engineering reports, design drawings, and test & computations for Parts Manufacturer Approval (PMA) on FAA Part 23, 25, 27, and 29 category aircraft.
- Created and edited engineering drawings using SolidWorks and Adobe Acrobat for various aircraft parts.

Extracurriculars

Undergraduate Teaching Assistant August 2023 - May 2026
Purdue University Department of Physics and Astronomy *West Lafayette, IN*

- TA for PHYS 172: Modern Mechanics, the introductory physics course for first-year engineering students.
- Facilitated lab sections of up to 54 students, assisting students in understanding basic physics concepts and programming in Python.

Publications

R. M. Ali, A. C. Slagle, **A. Mordasiewicz**, J. Orphee, and P. J. McDonough, "Apollo 11 Lunar Module Touchdown Dynamics Reconstruction Verification and Validation for Human Landing Systems", in *48th Annual AAS Guidance, Navigation and Control (GN&C) Conference*, Breckenridge, CO, 2026, NASA Technical Reports Server, Doc. ID 20260000331 (https://ntrs.nasa.gov/citations/20260000331).

Technical Skills

Programming: Python, C/C++, Rust, Julia, MATLAB, Java, JavaScript, TypeScript (React), HTML/CSS, Bash, Git, R

Other: Simulink, GMAT, FreeFlyer, STK, Azure DevOps, GitHub, GitLab, Microsoft Office, Jira, SolidWorks, Siemens NX