Fletcher Smith

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Education

University of Maryland | College Park, Maryland — Graduated May 2024
Bachelor of Science in Aerospace Engineering | *GPA: 3.924*

- **Relevant Coursework:** Control of Aerospace System, Robotics Programming, Space Navigation and Guidance

Comillas Universidad Pontificia | Madrid, Spain — Spring Semester 2022
International Studies in Engineering | *GPA: 3.950*

- **Relevant Coursework:** Thermodynamics, Thermal Physics, Quantum Physics

Experience

NASA Outreach Program — Aug 2023 – May 2024
Guidance, Navigation, and Control Engineer — *College Park, MD*

- Designed an optimal sensor suite for autonomous rover navigation using LiDAR, reducing power and weight, and ensuring 70% of components are TRL 9 and 20% TRL 8.
- Generated a global path plan using LOLA elevation and slope data to minimize max slope encountered by 10%, average slope encountered by 34%, and total distance traveled by 20%.
- Constructed the rover mission to return 3 times requested data by modeling rover conditions; charge levels, drive distance, measurement time, and communication windows.

University of Maryland's Collective Dynamics and Control Laboratory — Jan 2023 – May 2024
Undergraduate Researcher — *College Park, MD*

- Integrated and tuned electronic components to control the volume within a custom-designed syringe to change the relative buoyancy of the robot.
- Fabricated electrical circuit to fit within the desired volume and troubleshoot using a multimeter and oscilloscope.
- Reached critical damping during MATLAB simulations of the robot's dynamics.
- Created a pressure-depth map to determine depth within $\pm$0.5–1 cm accuracy.
- Implemented a feedback controller in C++ to have the robot settle at the desired depth within 10 cm.
- Analyzed and communicated data results to a group of up to 20 graduate students and professors every week.
- Individually developed testing procedures to qualify and quantify the robot's capabilities for future research projects.

University of Maryland's Space Systems Laboratory — Sep 2021 – Feb 2022
Undergraduate Researcher — *College Park, MD*

- Worked with undergraduate and graduate students to design a wheel-on-limb mobility system to explore previously unreachable areas of scientific interest on the moon.
- Researched scholarly articles to develop and design a base station for stability, continued power, and the rover's communication during steep entry slopes.
- Designed and communicated through Siemens NX an anchor to hold 200 kg and tether winch system to extend to 110 m.

Skills

Programming: MATLAB, Python, JAVA, C++, Linux
CAD: Siemens NX, Autodesk Inventor, Autodesk Fusion 360
Other Programs: Gazebo Simulator, Simulink, AGI STK, Blender, QGIS, Adobe Photoshop, Microsoft Excel, LaTeX
Other: Circuit design, Hardware implementation, Soldering, 3D printing, Laser cutting, Woodworking, Machine and Hand tools, management, scheduling

Achievements

- Cum Laude Honors (top 10% in A. James Clark School of Engineering)
- Engineering Honors Research Completion
- Clark School of Engineering Dean's List
- NASA BIG Ideas Challenge Finalist