Sreelekshmi "Sree" Sreekumar

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EDUCATION

University of Central Florida (UCF) August 2020 – August 2025
Bachelor of Science in Mechanical Engineering, Bachelor of Science in Computer Science Overall GPA: 3.62/4.00
Students for the Exploration & Development of Space Executive Officer (2023 – 2024)
Society of Women Engineers Executive Officer (2021 – 2022)

WORK EXPERIENCE

Exolith Lab/Florida Space Institute *Orlando, Florida, USA*
Lead Research/Mechanical Engineer February 2022 – July 2025

- Led development of a solar-powered regolith sintering system to evaluate the feasibility of in-situ lunar construction, producing a full-scale 5 × 5 × 7 ft prototype
- Integrated 80/20 aluminum structure, DC motor actuation, Raspberry Pi control software, and a Fresnel lens solar concentrator with limit switches and camera-based tracking for automated operation
- Authored test procedures, executed setup and runs, and performed post-test reviews; analyzed mechanical properties with MTS Systems compression and three-point bend tests to assess performance
- Trained interns on hardware handling, integration procedures, and documentation in a controlled lab environment
- Supported lab fabrication tasks using machining tools, including bandsaw and knee mill

[*AIAA SciTech 2026 Conference Paper in progress…*]

NASA Ames Research Center *Mountain View, California, USA*
Mechanical Test Engineering Intern August 2023 – December 2023

- Designed and built test fixtures for supporting payload integration readiness and compliance testing, including vibration test plates and Hold-Down Release Mechanism prototypes, using PTC Creo; developed component drawings using GD&T
- Contributed to lunar lander payload integration, ensuring compliance with CLPS vibration, performance, and environmental requirements

[Sreekumar, S., & Bowman, T. L. (2023). "Designing for Success: Resolving Resonance Challenges for Payloads on the Moon." Poster presented at NASA Better Together Conference, San Jose, CA, USA.]

Vasu Lab (Combustion, Propulsion, Laser Diagnostics and Absorption Sensors, and Fuels) *Orlando, Florida, USA*
Research Assistant May 2023 – February 2025

- Operated a high-pressure shock tube facility, integrating fuel injectors and calibrated instrumentation to validate system performance
- Developed Python and MATLAB scripts for extracting velocity, density, and temperature gradients from Schlieren images for combustion flow diagnostics

[Sreekumar, S., Franzen, M., Vest, L., Albright, M., Urso, J., and Vasu, S. S., "Visualizing Jets in Crossflow with Classic Schlieren," Paper presented at AIAA SciTech Forum, Orlando, FL, January 2025.]

PROJECTS

Talon Simulations F-35 Flight Simulator January 2025 – August 2025

- Built and integrated a custom throttle control system as part of an F-35 flight simulator, incorporating 29 hardware inputs and comprehensive documentation (requirements, FMEA, test plans) for validation
- Programmed a Python GUI and User Datagram Protocol (UDP) interface enabling real-time simulator communication with Microsoft Flight Simulator and Digital Combat Simulator

SEDS-UCF NASA Big Ideas Challenge 2022 August 2020 – August 2021

- Designed a mechanical rover body in SolidWorks, optimized for maneuverability

SEDS-UCF Liquid Bi-Propellant Rocket, Propulsion Team August 2020 – August 2021

- Contributed to a comprehensive FMEA for a liquid bi-propellant propulsion system, identifying potential failure modes to improve reliability and safety

SKILLS

Software: C, C++, Java, JavaScript, Python, MATLAB, Ubuntu, PTC Creo, SolidWorks, LabVIEW, OpenRocket
Testing/Validation: Vibration/environmental testing, mechanical property testing, Schlieren diagnostics
Documentation: FMEA, requirements capture, test planning, GrabCAD, GitHub, Jira, LucidChart, MS Office
Technical: GD&T, machining, additive manufacturing, woodworking, test fixtures, motion systems, payload simulation, microcontrollers, encoders, pressure transducers, analog-to-digital converters, forklift