Yashvi Deliwala

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EDUCATION

University of Southern California – Los Angeles, CA
Master of Science, Astronautical Engineering, GPA 3.25　　　　　　　　　　　　　　　　　　　　*May 2025*
Relevant coursework: Spacecraft System Design, Human Spaceflight, Spacecraft Life Support Systems, Orbital Mechanics
Bachelor of Science, Aerospace Engineering, GPA 3.44　　　　　　　　　　　　　　　　　　　　　　*May 2025*
Honors: Presidential Scholar, Trojan Scholars Society, Grand Challenges Scholar
Relevant coursework: Aerospace Structures, Mechoptronics, Automotive and Flight Propulsion, CAD of Mechanical Systems

WORK EXPERIENCE

Data Analyst & Test Engineer, Space Engineering Research Center – Marina Del Rey, CA　　　*May 2024 – Present*
- Analyzed relative RPY angle data of genderless docking system (CLINGERS) tested on ISS to validate mission requirements
- Calculated mass flow rate through NASA Ames Astrobees' impellers using force and torque data to quantify proportional fuel usage to demonstrate improved delta-V efficiency of cooperative docking system over traditional RPO methods
- Utilized Foxglove Studio and MATLAB to visualize key performance metrics and classify docking engagement of CLINGERS
- Supported static and dynamic testing of space debris mitigation robot (REACCH) on both float table and integrated robotic arm

Course Producer for Mechoptronics B, University of Southern California – Los Angeles, CA　　*Jan 2025 – Present*
- Assisting undergraduate students with laboratory experiments involving LabView, Arduino, and operational amplifier circuits
- Tested and debugged operational amplifier circuits using digital multimeter, oscilloscope, waveform generator, and power supply
- Facilitated experiments on digital image correlation, SMAs, wind tunnel, heat transfer, turbulent jets, and vibrating beams

Structural Engineering Intern, Northrop Grumman – Redondo Beach, CA　　　　　　　　　*May 2023 – July 2023*
- Led stress analysis for additively manufactured component which saved $650,000 of production cost and 11 months of lead time
- Enhanced part design by running trade studies in FEMAP to reduce mass and increase stiffness of topology-optimized designs
- Processed FEM in Nastran and ran static and modal analysis to provide recommendations for component design modifications
- Performed finite element analysis (FEA) using FEMAP and bolted joint analysis to certify automated robotic system

TECHNICAL SKILLS & ACHIEVEMENTS

- MATLAB, Python, Arduino, LabView, Jupyter Lab, EdgeImpulse, Foxglove Studio, GPredict, AGI STK, Adobe Creative Suite
- SolidWorks, Siemens NX, ANSYS Workbench, FEMAP, MathCAD, Nastran, Onshape
- President of USC American Institute of Aeronautics and Astronautics (AIAA) – 2022-2024
- AGI Systems Tool Kit Level 1 Certification, Level 1 TETK Certification

ACADEMIC PROJECTS

Superelastic Tires for Space Exploration, Senior Design Project　　　　　　　　　　　*August 2024 - Present*
- Developed 8-inch superelastic tire using Nitinol wire to evaluate load-carrying capabilities and bead angle effects on deformation
- Fabricated dynamic testing setup incorporating 80/20, linear actuator, load cell, and walking pad to analyze tire performance
- Configured rotary encoder, IMU, and Arduino circuits for acquisition of rotational speed and vertical deformation data
- Collaborated with NASA GRC to replicate NASA Superelastic Tire using 300ft of Nitinol wire sponsored by Fort Wayne Metals

Happy Valley Base, Mars Surface Habitat Design Project for Human Spaceflight　　　　　　　*October 2024*
- Authored technical report on theoretical Mars habitat, covering site selection, Earth-Mars transit, and crew health considerations
- Designed a human-rated ECLSS, detailing subsystems for atmospheric control, CO_2 removal, and thermal regulation
- Developed EVA operations, including airlock controls, flight rules, depress/repress procedures, and emergency contingencies

FF 50-261, Turboprop Design Project for Flight Mechanics　　　　　　　　　　　　　　　　*May 2023*
- Optimized ATR 42-600 to be 20% more energy efficient using MATLAB and other computational methods
- Utilized MATLAB to create drag profiles and turning envelope graphs, conducted weight analysis of composite wings

INVOLVEMENT

Project Manager, USC Makers　　　　　　　　　　　　　　　　　　　　　　　　　　*August 2024 – Present*
- Led team of 7 engineers to design and build 3D-mapping drone to survey and map terrain using LiDAR imaging and ESP-EYE camera with EdgeImpulse to calculate 3D point clouds and display key metrics from drone on custom web application
- Constructed 3D-printed virtual reality headset in SolidWorks, integrated LED screens to display Subway Surfers style game

Vice President of Operations, USC Society of Women Engineers (SWE)　　　　　　　　*September 2022 – Present*
- Led team of 6 engineers, coordinating weekly meetings, overseeing USC SWE social media presence and communication
- Redesigned USC SWE branding for social media, designed member merchandise in Canva and built website in Wix
- Organized events for 500+ members with team of 35 people, providing academic assistance and mentorship to SWE members