Mekhi Himalaya Roberts

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EDUCATION

UNIVERSITY OF CALIFORNIA SAN DIEGO La Jolla, CA

B.S. Aerospace Engineering, Specialization in Astrodynamics and Space Applications Expected June 2027

Relevant Coursework: MATLAB Programming For Engineering Analysis, Aerospace Materials Science, Statics and Dynamics, Dynamics and Vibrations, Solid Mechanics, Advanced Fluid Mechanics, Thermodynamics, Mathematical Physics, Signals and Systems, Linear Control, Aerodynamics, Aerospace Structural Mechanics

PROFESSIONAL EXPERIENCE

ROCKET PROPULSION LABORATORY San Diego, CA

Phoenix Structures June 2025 – Ongoing

- Designed and prototyped the body tube–bulkhead interface, ensuring structural integrity and subsystem compatibility for a 15 ft bipropellant rocket
- Performed finite element analysis on bolt patterns to evaluate shear-out, torsional buckling, and bearing failure criteria
- Investigated and mitigated failure mode risks in stiffener ring designs, improving load-bearing efficiency under flight level stresses
- Manufactured and assembled composite and aluminum structures, including structural ground support equipment for testing and integration
- Collaborated with subsystem engineers to coordinate external structure alignment with propulsion, fluids, recovery, and avionics interfaces

Daedalus Program Sep 2024 – May 2025

- Participated in Project Daedalus, collaborating in a small group of four to design, build, and launch a G-class model rocket
- Learned rocketry and CAD design through OpenRocket, Solidworks, Prusa3D
- Conducted launch day procedures and data collection during G-class rocket test at Friends of Amateur Rocketry (FAR) launch site
- Presented and documented technical work instructions to programs chief engineers within an 8 month timespan

TRITON UNMANNED AERIAL SYSTEMS San Diego, CA

Business Team June 2025 – Ongoing

- Managed sponsorship outreach, budgeting, and procurement to secure funding and ensure material availability
- Developed and maintained project documentation, vendor relations, marketing content, and organized team outreach events to strengthen club visibility
- Executed cost analysis and bill of materials creation for UAV production and testing phases

ACTIVITIES

MAE 21 COLD WORK & CARBON FIBER COMPOSITE LAB Aug 2024 – Dec 2024

- Increased the hardness and strength of C360 brass by applying controlled cold-work through rolling, recording dimensional changes, and tracking hardness progression using Rockwell B testing
- Converted HRB values to estimated tensile strength and analyzed strengthening trends by plotting hardness versus percent cold-work to explain how plastic deformation affects dislocation density
- Built two-layer carbon-fiber composite panels by mixing epoxy resin, wet-laying fabric plies, consolidating layers to remove air pockets, and curing the laminate into a finished composite sample
- Ensured high-quality composite construction by managing resin-to-hardener ratios, verifying complete fiber wet-out, and maintaining clean layup conditions to prevent voids and delamination in the final laminate

SKILLS

Technical Skills: Solidworks, AUTOCAD/Autodesk Inventor, Adobe Premiere Pro, Excel, MATLAB, Soldering, Manual and CNC Machining

Languages: Fluent in English, Spanish