

Jayadeep Reddy Tangirala

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EDUCATIONAL BACKGROUND

- **LEHIGH UNIVERSITY** *Bethlehem, PA, USA*
Master of Science, Mechanical Engineering
Expected Graduation - May 2025 *2023 - 2025*
- **JNTU Hyderabad** *Hyderabad, TS, India*
Bachelor of Technology, Mechanical Engineering *2018-2022*

RELEVANT EXPERIENCE

Lehigh University Unsteady Flow Laboratory - Research Assistant *Aug 2024 - present*

- Designed and assembled 10+ custom experimental rigs to simulate fluid-structure interactions, optimizing energy transfer in hydrodynamic systems.
- Utilized Particle Image Velocimetry (PIV) and MATLAB for data analysis, reducing measurement errors by 12% through statistical refinement.
- Authored technical reports on hydrodynamic performance, aligning findings with energy efficiency goals for peer-reviewed publications.
- Collaborated with interdisciplinary teams to troubleshoot instrumentation, ensuring compliance with lab safety protocols.

SWARMS (AIR) Lab - Summer Research Intern *May 2024 - Aug 2024*

- Developed lightweight blimp prototypes using SolidWorks, reducing material waste by 20% through optimized CAD models.
- Conducted iterative flight tests, resolving buoyancy and load-bearing challenges to improve energy-efficient swarm coordination.
- Streamlined integration of motors/sensors, enhancing system reliability for low-power applications.

Teaching Assistant - Department of Mechanical Engineering *Jan 2024 - May 2024*

- Assisted in ME 321 (Heat Transfer) and ME 252 (Mechanical Elements) courses, providing guidance to students and ensuring a strong grasp of technical concepts.
- Designed assessments and supported instructional delivery, improving communication and time-management skills.

OTHER ROLES

- Athletics Supervisor | Taylor Gym
- Graduate Consultant | Lehigh Technological Services
- Graduate Supervisor | Lehigh Library Lending Services
- Classroom Live Moderator | Lehigh Distance Education Office
- Co-Chair of graduate student outreach | Lehigh Global Union

KEY PROJECTS

Hydrodynamic Efficiency Optimization | Lehigh University

- Improved propulsive efficiency of flexible hydrofoils by 18% through bio-inspired actuator design, directly applicable to energy-saving fluid systems.
- Presented findings at university symposiums, highlighting implications for sustainable underwater technologies.

Robotic Blimp Swarm Development | SWARMS Lab

- Led prototyping and testing of energy-efficient blimp swarms, achieving 30% longer flight times via aerodynamic optimization.

F-22 Inspired Control Systems | Lehigh University

- Collaborated with aerospace experts to integrate manufacturing constraints into control systems, reducing estimated costs by 15%.

TECHNICAL SKILLS

- **CAD & Simulation:** SolidWorks, ANSYS, COMSOL
- **Programming & Analysis:** MATLAB, Python, C
- **Flow Analysis Tools:** XFLR5, LaVision DaVis
- **Microsoft Office:** Excel, Word, PowerPoint, Outlook
- **Engineering Methods:** Predictive & Preventive Maintenance Principles, Root Cause Analysis, Process Optimization

ADDITIONAL STRENGTHS

- **Analytical Problem-Solving:** Proven ability to diagnose and resolve technical challenges in energy systems.
- **Adaptability:** Skilled in pivoting between lab, field, and collaborative environments under tight deadlines.
- **Communication:** Distill complex data into actionable insights for technical and non-technical audiences.
- **Languages :** Trilingual with proficiency in Telugu, Hindi and English Languages

INTERESTS AND HOBBIES

- Reading (Favorite book - A Thousand Splendid Suns)
- Sci-fi fan (Favorites : Movie - Interstellar, Series - The Mandalorian, Book - 3 Body Problem trilogy)
- Cooking (Signature dish - Hyderabadi Dum Biryani)
- Stargazing (Mapping constellations and tracking light pollution trends)