

Bontalakoti Venkata Harshavardhan

Portfolio: Personal Portfolio

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EDUCATION

- **Indian Institute of Technology, Hyderabad** Telangana, India
Bachelor of Technology - Mechanical Engineering; CGPA: 9.12 July 2024 - May 2025
- **National Institute of Technology, Silchar** Assam, India
Bachelor of Technology - Mechanical Engineering; CGPA: 9.12 December 2021 - May 2024

EXPERIENCE

- **Indian Institute of Technology Madras** Onsite
Summer Intern (Full-time) May 2024 - July 2024
 - Selected for the prestigious Summer Fellowship Program(SFP-2024) under the Aerospace Department.
 - Worked on creating an open-source simulation environment based on Unity and ROS2.
 - This novel simulator helps in developing control algorithms and advanced interactions between ships and drones in a environment with simulated ocean and wind physics.
- **Instruments Research and Development Establishment** Onsite
Summer Intern (Full-time) May 2023 - July 2023
 - Entrusted with the critical task of designing and analyzing ammunition mountings for drones, terrain vehicles, and naval vessels.
 - This role equipped me with a valuable opportunity to deepen my knowledge of vehicle dynamics and the specific requirements of different platforms. Gained practical experience in design and analysis techniques.
 - Played a key role in conceptualizing an innovative approach to utilize Ocean Buoys for advanced coastline surveillance. This novel idea significantly enhanced our ability to monitor coastal activities thereby reducing the costs by up to 30-percent.

PROJECTS

- **Drone Design Aerothon 2023**
Team Praveg
 - As part of Team Praveg, we were entrusted with the challenge of designing a drone capable of autonomous operations and weight transportation.
 - My specific role involved spearheading the development of the avionics section and the integration of machine learning algorithms for enabling autonomous control of the drone.
- **Quasar Rover**
Team Four Square
 - As part of Team Four Square, we designed and built a solar-powered rover capable of transporting loads. This was in response to the problem statement given by ASME EFX 2023, a global engineering competition.
 - Involved designing and simulating the stresses in the bot design, ensuring its structural integrity and durability using Solidworks and ANSYS respectively. Also engineered the communication system using radio modules, enabling the rover to receive and transmit signals from a remote controller.

SKILLS

- **Programming Languages:** Python, C, Matlab
- **Frameworks:** Tensorflow-Keras, Pandas, Scikit, OpenCV, Pygame, Google Colaboratory, ROS2
- **Tools:** SolidWorks, Ansys, Arduino, ESP32, Simulink, Unity Game Engine, Gazebo
- **Languages:** Fluent – English, Hindi ; Native – Telugu ; Beginner- German
- **Soft Skills:** Leadership, Teamwork, Problem Solving, Communication

CERTIFICATIONS

- **Matlab and Simulink Fundamentals:** Learned about the fundamentals of programming in Matlab and Simulink.
- **Robotics: Aerial Robotics(Coursera-UPenn):** Learned about the control and simulation of drones and aerial robots.

ACHIEVEMENTS

- **Exchange Program:** Selected for the prestigious exchange program to Indian Institute of Technology, Hyderabad. This opportunity is given to only top 10% of the students after their junior year.
- **Smart India Hackathon 2024:** Won the Smart India Hackathon 2024 Hardware edition. Our team engineered a unique drone-based solution to address the problem statement of Smart Automation, demonstrating innovation, technical expertise, and teamwork.

PUBLICATIONS

- Improvement in Multi-resident Activity Recognition System in a Smart Home Using Activity Clustering
Springer Publication: Internet of Things Advances in Information and Communication Technology