PRANAV ANV

+1(703) 357-7242 ◇ College Park, MD ◇ anvpran@umd.edu ◇ LinkedIn ◇ Github

EDUCATION

University of Maryland — **College Park**
Master of Engineering in Robotics, GPA: 3.83/4 — **Dec 2025**
Relevant Coursework: Planning and Perception for Autonomous Robots, Control Systems, Modeling of Robots

SASTRA University — **Thanjavur**
Bachelor of Technology (Hons.) in Mechatronics, GPA: 8.02/10 — **May 2023**
Relevant Coursework: Mechatronics, Embedded Systems, System Engineering, Manufacturing and Automation

SKILLS

Technical Skills: ROS, Python, C++, MATLAB, C, RPA, Gazebo, SLAM, OpenCV, Embedded Systems, PLC, Ladder Logic, Machine Learning, Deep Learning, Robot Learning, UiPath, Linux, Docker, Git
Software: AutoCAD, ANSYS, Creo, Rviz, Arduino, Node MCU, Raspberry Pi, Altium and Pixhawk

EXPERIENCE

Maryland Robotics Center — **University of Maryland**
Graduate Researcher — **Jul 2024 - Present**

- Enhanced the AAM-SEALS project by leading mechanical design, simulation, and hardware integration using ROS, Python and AutoCAD boosting efficiency by 20% and enabling seamless function across varied environments.
- Devised and optimized advanced embedded hardware and electronics for the AAM-SEALS drone, enhancing high fidelity for complex aerial and hydrodynamic simulations and achieving a 25% improvement in simulation accuracy.

Indian Institute of Technology Hyderabad — **Hyderabad, India**
Research Intern — **Feb 2022 - Mar 2022**

- Assembled an agriculture drone from the ground, integrating advanced imaging sensors and autonomous navigation that boosted crop data analysis efficiency by 30%, enhancing real-time precision agriculture using OpenCV.
- Spearheaded propulsion and advanced control system integration for a human-transportation drone, enabling safe transport of up to 2 passengers and advancing expertise in robotics, aerodynamics, and complex system integration.

PROJECTS

- **Deep Learning-Based Speech Recognition for a Bionic Arm** — **Jan 2023**
  Engineered a deep learning algorithm for a bionic arm, enabling precise actions like holding, gripping, and wrist movements with 90% accuracy and 50% boost in responsiveness, leveraging CNNs in TensorFlow for functionality.
  Publication: International Conference on Smart Systems and Inventive Technology (ICSSIT)
- **Dynamic Obstacle Avoidance** — **May 2024**
  Refined adaptive navigation algorithms using Q-Learning and Deep Q-Learning, achieving a 40% enhancement in obstacle avoidance and significantly accelerating response times through Pygame and PyTorch frameworks.
- **Autonomous Navigation of TurtleBot** — **May 2024**
  Executed autonomous path planning for TurtleBot with sensor integration and A* search algorithm, resulting in a 25% efficiency gain and a 60% decrease in collision rates across complex terrains, boosting navigation reliability.
- **Water Level Detection in Maritime Vessels** — **Dec 2024**
  Built a computer vision pipeline to determine water levels by analyzing draft marks on a ship's hull, applying perspective correction, image processing algorithms, and Tesseract OCR to increase accuracy by 30% in real-time.
- **Pharmacy Robot Modeling and Navigation** — **Dec 2024**
  Crafted a pharmacy robot with multi-DOF arm in SolidWorks with LiDAR integration, and sensor validation, reducing path deviation, diminishing dispensing errors by 35%, and amplifying cost-effectiveness of manipulator.

LEADERSHIP AND MENTORSHIP

- Instructing over 130 students in the Fluid Mechanics course as a **Teaching Assistant**, explaining complex concepts.
- Led strategic initiatives as Vice President of the Engineering Graduate Student Society for 500+ students.