DEV GOTI

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EDUCATION

Texas A&M University **College Station, TX**
Master of Science in Electrical Engineering *May 2027*
Courses: Fall 2025 - Robotics and Spatial Intelligence, Linear Multivariate Systems, Probability and Random Processes for Information Science

National Institute of Technology Karnataka, Surathkal **Mangalore, India**
Bachelor of Technology in Electrical and Electronics Engineering *May 2025*
GPA : 8.70/10
Relevant Coursework: Robot Modelling and Control, Linear Control Theory, Neural Network and its Applications, Statistical Foundation, Digital System Design, Digital Signal Processing, Linear Algebra

EXPERIENCE

Indian Institute of Space Science and Technology **Thiruvananthapuram, India**
Summer Research Intern, IASc Summer Research Fellowship Programme 2024 *May 2024 – July 2024*
- Developed a dynamic object tracking system for a Kinova robotic arm using PPO reinforcement learning in ROS and Gazebo, enabling accurate tracking of moving targets
- Implemented custom ROS nodes for real-time joint velocity control, state observation, and action execution
- Developed a multi part reward function balancing target proximity, goal progress, motion smoothness, energy efficiency, and joint/velocity limits, optimizing the PPO algorithm's learning for efficient and stable control

PROJECTS

Autonomous Navigation of a Differential Drive Robot using DRL *November 2023 – March 2024*
- Built an autonomous navigation system using Deep Deterministic Policy Gradient (DDPG), integrating ROS2 and Gazebo and fusing LIDAR and encoder data for enhanced perception and decision making
- Implemented noise injection and randomized actions near obstacles to improve exploration and avoidance
- Designed a reward function balancing goal, obstacle avoidance, and path efficiency in dynamic settings

Autonomous Mobile Robots for Object Manipulation *September 2023 – July 2024*
- Engineered a four-wheel holonomic autonomous mobile robot for ABU Robocon 2024 'Harvest Day' to execute tasks including object pickup, ball kicking, and item sorting from scattered positions
- Designed and integrated a computer vision system to detect and track balls for accurate object handling improving accuracy in dynamic task environments
- Integrated odometry, encoders, and IMU fusion for precise navigation, deploying control software on microcontrollers and Raspberry Pi with Docker for modular development

Low Light Image Enhancement using MIR Net *October 2022 – March 2023*
- Developed MIR Net for low-light enhancement with multi-scale residual learning and channel attention
- Enhanced model with multi-scale residual learning and attention fusion to boost sharpness and suppress noise
- Refined model by optimizing Residual Blocks and Groups to enhance speed efficiency and feature extraction

SKILLS

Programming Languages: Python (Advanced), C(Intermediate), C++ (Intermediate)
Tools/Software: ROS, ROS2, MATLAB, Simulink, Gazebo, VS Code, Rviz, CARLA
Libraries & Frameworks: NumPy, Matplotlib, Pandas, OpenCV, sci-kit-learn, Keras, TensorFlow, PyTorch
Technologies & Platforms: Docker, Linux, GitHub, Arduino, Raspberry Pi, ESP 32

LEADERSHIP

CSD Robocon NITK **Mangalore, India**
Vice Captain *July 2024 – April 2025*
- Managed overall team operations for 40+ members, coordinating technical, finance, and media activities while overseeing budgets, sponsorships, and outreach for ABU Robocon International competition readiness

Electronics and Programming Subsystem Member *May 2022 – April 2025*
- Designed and assembled PCBs and power distribution boards, integrating sensors (ultrasonic, IR, IMU, encoders) and actuators (DC, servo, stepper motors) using Arduino boards and ESP32 microcontrollers.
- Programmed control algorithms (PID, point-to-point navigation) on Raspberry Pi and microcontrollers, leveraging ROS nodes to acquire, synchronize, and fuse multi-sensor data, and configured communication protocols (UART, I²C, SPI) for seamless multi-device coordination.
- Developed a computer vision model using OpenCV for object detection and tracking and implemented closed loop feedback systems with IMU and encoder to achieve robust localization and stability.