Nitish Ravisankar Raveendran

College Park, MD
rrnitish@gmail.com
+1 (240)-825-6896
LinkedIn: Nitish Ravisankar Raveendran
GitHub: Nitish05
Portfolio: rrnitish.com

Education

University of Maryland, College Park
Master of Engineering in Robotics *Expected Graduation: Spring, 2025*
Relevant Coursework: Advanced Robotics, Machine Learning, AI in Robotics, Sensor Integration, Computer Vision, Sensor Fusion

Anna University, PEC, Chennai
Bachelor of Engineering in Electronics and Communications Engineering *July 2022*
CGPA: 8.94/10.0

Work Experience

Cognizant, Chennai *Intern* *February 2022 - August 2023*
- Developed and deployed full-stack features using React and Node.js, improving system performance by 15%.
- Enhanced application security by implementing OAuth-based authentication, reducing vulnerabilities.

Institute of Innovations, Chennai *Intern* *May - June 2021*
- Designed and deployed IoT devices using ESP8266 and ESP-32, improving real-time data acquisition by 20%.
- Integrated cloud-based analytics, reducing latency in sensor data processing.

Projects

Bipedal Locomotion Using Reinforcement Learning *Fall 2024*
- Implemented TRPO, PPO, and TQC for bipedal locomotion in simulation, optimizing efficiency and stability.
- Compared training performance across different RL algorithms to refine gait adaptation.

Gesture-Based Control in Assistive Technology *Fall 2024*
- Developed a real-time hand-gesture recognition system using Google MediaPipe and ROS2.
- Enhanced TurtleBot teleoperation efficiency by 30% through adaptive control algorithms.

Multi-Agent Navigation with MCTS *Fall 2024*
- Evaluated centralized vs. decentralized navigation strategies in multi-agent robotic systems.
- Integrated Monte Carlo Tree Search (MCTS) in ROS2 and Gazebo, improving path efficiency.

Lunar Light Utility Vehicle (LLUV) *Fall 2024*
- Conceived and built a lightweight, autonomous lunar rover for site preparation and infrastructure support.
- Integrated adaptive suspension and refined wheel designs, achieving enhanced navigation efficiency on simulated extraterrestrial terrains.

Arduino-based Aimbot with YOLO Object Detection *Summer 2024*
- Engineered an advanced Arduino-based aiming solution that incorporated YOLO technology to achieve over 95% accuracy in target recognition while streamlining the servo adjustment process, resulting in reduced setup times across projects.

Quadcopter Design and Development *Summer 2024*
- Devised and constructed an autonomous quadcopter by integrating mechanical, electronic, and software components, enhancing control responsiveness.
- Implemented simulation and control systems in Python and C++ to streamline flight performance.

Reinforcement Learning for Robot Pursuit and Evasion *Spring 2024*
- Devised a reinforcement learning framework using DQN for training robot pairs (evader and pursuer) in a 3D ROS2 and Gazebo environment, bolstering strategic decision-making.

Alpha - Pick and Place Mobile Manipulator *Fall 2023*
- Innovated and crafted a CAD-based mobile manipulator integrated with ROS2, mitigating operational errors during precision pick-and-place tasks.

Leadership & Volunteering

Robotics Club, PEC Chennai
President *March 2019 - August 2022*
- Championed club initiatives that increased membership and orchestrated multiple innovative projects and events, engaging a large number of students.

National Service Scheme (NSS)
Member November *2018 - July 2022*
- Collaborated on community service projects, demonstrating strong leadership and effective teamQ coordination.

Technical Skills

- **Programming:** Python, C++, MATLAB
- **Machine Learning:** PyTorch, TensorFlow, Deep Reinforcement Learning
- **Robotics:** ROS2, Gazebo, Computer Vision, Perception Systems
- **Embedded Systems:** Arduino, ESP8266, ESP-32
- **Simulation and Algorithms:** Sensor Fusion, State Estimation, Depth Estimation, Path Planning
- **Tools:** JAX, Docker, Git

Certifications

- Build a Face Recognition Application using Python - GUVI, April 2021
- Python Programming - Coursera
- Advanced Robotics
- Smart India Hackathon Participant
- Web Development - Codebind

Languages & Interests

Languages: English, Tamil
Interests: Autonomous Systems, Perception Systems, UAV Design, AI Applications