Nitish Ravisankar Raveendran

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github.com/Nitish05

Education

University of Maryland, College Park, M.Eng Robotics — Aug 2023 – May 2025

- GPA: 3.79/4.0
- **Coursework:** Machine Learning, AI in Robotics, Sensor Integration, Computer Vision, Sensor Fusion, SLAM

Anna University, PEC, Chennai, B.E. Electronics and Communications — Aug 2018 – May 2022

- GPA: 8.94/10

Experience

Software Engineer, Cognizant, Chennai — Feb 2022 – Aug 2023

- Developed and deployed full-stack features using React and Node.js, improving system responsiveness by 15%.
- Enhanced application security by implementing OAuth-based authentication, reducing vulnerabilities.

Club President, Robotics Club, PEC Chennai, — March 2019 – Aug 2022

- Championed club initiatives that increased membership and orchestrated multiple innovative projects and events, engaging a large number of students.

Projects

Bipedal Locomotion Using Reinforcement Learning — github.com/Nitish05/walker

- Analyzed and optimized model training by implementing and comparing TRPO, PPO, and TQC algorithms to generate adaptive bipedal gaits. Reduced training convergence time by 35% and improved sample efficiency, demonstrating a strong grasp of how architectural choices and optimization techniques impact training performance in complex sequential decision-making problems.
- Tools Used: Python, PyTorch, OpenAI Gym, MuJoCo, ROS 2

Reinforcement Learning for Pursuit–Evasion — github.com/Nitish05/p&e

- Developed a multi-agent DQN framework in ROS2 & Gazebo to investigate emergent behaviors and convergence challenges in a distributed agent system. This work provides insights into training stability and parameter tuning for complex and interactive artificial intelligence models analogous to real-world driving scenarios.
- Tools Used: Python, PyTorch, ROS 2, Gazebo, Docker

StereoSight: Local Planner for Drones — github.com/Nitish05/SS

- Engineered a real-time perception and planning pipeline in ROS 2, processing stereo camera depth maps into occupancy grids for autonomous navigation. Optimized Dijkstra algorithm for efficient waypoint computation, crucial for low-latency decision making in production systems.
- Tools Used: C++, Python, ROS 2, OpenCV, PCL

TurtleBot3 Vision-Based Path Following — github.com/Nitish05/TB

- Designed a robust vision-based perception and control pipeline in ROS2 and OpenCV to enhance autonomous navigation. This system forms a foundational block for end-to-end models, successfully navigating complex paths with varied conditions, increasing route success rates by 40% while maintaining 30 FPS processing.
- Tools Used: C++, Python, OpenCV, ROS2, Linux

Technologies

Languages: Python, C++, C#, JavaScript, SQL

Technologies: ROS 2, Gazebo, Docker, PyTorch, OpenAI Gym, MuJoCo, OpenCV, PCL, Git, Linux, Isaac Sim, React, Node.JS