Shriman Raghav Srinivasan

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Education

Northeastern University Boston, MA
Master of Science in Robotics; GPA: 3.78 *September 2024 – August 2026*
- Relevant Courses: Robot Sensing & Navigation, Mobile Robotics, Deep Learning for Robotics

SRM Institute of Science & Technology (SRMIST) Chennai, India
Bachelor of Technology in Mechatronics Engineering; GPA: 3.81 *June 2018 – May 2022*
- Relevant Courses: Fundamentals of Robotics, Linear & Digital Control Systems, Computer Vision for Robotics

Experience

Manufacturing Equipment Engineer Intern April 2025 – December 2025
Tesla Inc. *Fremont, CA*
- Led end-to-end deployment and production scaling of autonomous forklift AMRs using SLAM, LiDAR, and 3D pallet vision, automating pallet handling across live factory floors and enabling $2.04M projected annual cost savings through labor reduction and material flow optimization
- Designed and programmed a penalty-optimized Theta* path planning system, integrating with the central fleet manager via gRPC APIs and Kafka-based robot telemetry pipelines, deployed on Kubernetes to support real-time rerouting, improve multi-robot coordination, and reduce routing complexity by 83%
- Developed and deployed a RAG-based AI diagnostic agent integrated with factory maintenance systems, enabling context-aware troubleshooting, accelerating root-cause analysis, and reducing equipment diagnostic response time by 17%
- Owned DFMEA-driven reliability improvements for AGV operations, resolving derailment and control instabilities through PID tuning, dynamic modeling, vibration mitigation, and RFID recalibration, targeting a 35% reduction in unplanned fleet downtime
- Developed a multi-camera pedestrian safety system for industrial forklifts using YOLOv8 and Depth Anything V2 for real-time detection and depth estimation, optimizing GPU utilization and frame-skipping for 30 FPS multi-stream inference, reducing false alarms via OpenCV Canny,achieving less than 1 s latency

Robotics Engineer July 2022 – August 2024
Hero MotoCorp Ltd *Neemrana & Tirupati, India*
- Delivered a 67% reduction from Pallet unloading time and tripled pallet handling throughput by engineering zero height pallet lifters and thus eliminating forklift operations on the factory floor
- Achieved a 32% increase in JIT material loading efficiency by deploying a sampling based RRT AMR path planner,enhancing autonomous delivery precision and responsiveness

Projects

Improved LLM-A*: LLM Enhanced Cost Aware A* Path planning March 2025 – April 2025
- Redesigned and improved the LLM-A star hybrid path planning system from the ground up, integrating refined LLM waypoint guidance with classical A search to cut node expansions by 23.4% on 10×10 grids and 21.6% on 20×20 grids, delivering faster, resource-efficient navigation for robotics
- Boosted waypoint accuracy by 17.8% through systematic comparison of chain of thought, minimalistic, and Recursive Path Exploration (RePE) prompting methods, with RePE prompts consistently generating the most actionable and valid guidance for the planner

3D Reconstruction of sparse feature environment using RTAB SLAM October 2024 – November 2024
- Integrated RTAB-Map SLAM on an autonomous robot with ZED Mini Camera in ROS2, using Bayesian loop closure and GTSAM optimization to create drift-free maps in GPS-denied environments
- Designed a robust algorithm that combined stereo visual odometry and IMU data via Kalman filtering, achieving sub-centimeter accuracy and enhancing spatial awareness less-feature environments like underground tunnels of Northeastern University

GPS & IMU Sensor Fusion for Automotive Dead Reckoning September 2024 – November 2024
- Developed a Kalman-filtered GPS and IMU fusion system, increasing motion planning precision of RRT algorithm by 30% and enabling reliable positioning for manipulation
- Designed real-time trajectory correction algorithms to mitigate IMU noise, reducing deviations by 16% and ensuring precise robotic manipulation

Technical Skills

Technical: System Integration, SLAM, Sensor Fusion, Trajectory & Path Planning, Motion Planning,Kalman Filtering, Computer Vision, FMEA / DFMEA, Controls Engineering, Process Optimization
Programming: Python, C/C++, CUDA, VBA, PLC-Ladder, MELFA-BASIC, SQL
Software:Git, Github, MATLAB /Simulink, SolidWorks, Simscape, Isaac Sim, MuJoCo, Gazebo,RobotStudio,Power BI, AutoCAD
Hardware:Stereo Perception cameras, 2D/3D LiDAR, GPS(RTK), IMU, PLC, Arduino, Raspberry Pi, Jetson Orin
Libraries/Framework: Kubernetes, Splunk, Scipy,GraphQL, ROS 2, OpenCV, TensorFlow,Scikit-learn, PyTorch, OpenGym,React
Certifications:Gen AI, Deep Learning, Reinforcement Learning, Mechanism & Robot Kinematics, Systems Engineering