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, Control Systems Engineering, Deep Learning

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

Experience

Manufacturing Equipment Engineer Intern — April 2025 – December 2025
Tesla Inc. — *Fremont, CA*
- Led end-to-end deployment of autonomous forklift AMRs integrating SLAM, LiDAR, stereo cameras, and IMU sensors on live factory floors, projecting $2.04M annual cost savings through full-stack robotics integration
- Developed penalty-optimized Theta* path planning algorithm for internal fleet manager, reducing routing complexity by 83% and enabling real-time dynamic rerouting
- Owned DFMEA-driven reliability improvements resolving AGV control instabilities through systematic PID tuning, sensor calibration, and RFID recalibration, targeting 35% reduction in system downtime
- Built RAG-based AI diagnostic agent integrated with factory maintenance systems, reducing equipment diagnostic response time by 17% through context-aware troubleshooting support

Robotics Engineer – Projects — July 2022 – August 2024
Hero MotoCorp Ltd — *Neemrana & Tirupati, India*
- Spearheaded installation and commissioning of ABB and Mitsubishi robotic arms for lithium-ion battery assembly, performing system integration and reducing cycle time by 12% while increasing throughput by 85%
- Integrated inclined roller conveyor with Allen Bradley PLC system using ladder logic programming, performing I/O configuration and troubleshooting to improve throughput by 22%
- Developed vision-guided defect detection system achieving 92.3% accuracy, integrating SegNet with production line systems and reducing rework costs by $23,400 annually

Projects

Autonomous Robot System with Visual SLAM Integration — October 2024 – November 2024
- Designed full-stack autonomous robot system integrating RTAB-Map SLAM, ZED Mini stereo camera, and IMU in ROS2, implementing sensor fusion via Extended Kalman Filter achieving 0.8cm positioning accuracy
- Developed complete perception-to-control pipeline with Bayesian loop closure, GTSAM optimization, and real-time navigation, demonstrating end-to-end systems integration for GPS-denied environments

Multi-Sensor Navigation System with GPS/IMU Fusion — September 2024 – November 2024
- Built and deployed custom ROS2 sensor drivers for GPS and VectorNav IMU integration on automotive platform, achieving synchronized 40Hz multi-sensor data acquisition with proper hardware interfacing
- Implemented sensor fusion system with magnetometer calibration (94% error reduction) and EKF-based state estimation, achieving 2.3m positioning accuracy over 3km for robust autonomous navigation

Maze-Solving Robot: Full System with Controller Benchmarking — January 2025 – April 2025
- Developed complete robotic navigation system in MATLAB integrating PRM path planning with MPC trajectory tracking, benchmarking 4 controllers (PID, LQR, MPC, SMC) across 7 maze environments
- Achieved 23% lower tracking error with MPC over PID baseline, demonstrating systematic approach to control system selection and validation for autonomous mobile robot applications

Technical Skills

Systems Integration: Full-Stack Robotics, Hardware-Software Integration, Sensor Integration, System Architecture, Testing & Validation, Commissioning, Troubleshooting, DFMEA, Real-Time Systems

Robotics: SLAM, Sensor Fusion, Path Planning (A*, RRT, PRM), Motion Control (PID, MPC, LQR), State Estimation (EKF), Localization, Perception, Navigation Stack

Programming: C++, Python, MATLAB/Simulink, Ladder Logic, SQL

Software: ROS 2, Gazebo, Isaac Sim, MoveIt, Docker, Git, Linux/Ubuntu, SolidWorks, AutoCAD

Hardware: LiDAR, Stereo Cameras (ZED), IMU, GPS, PLC (Allen Bradley), NVIDIA Jetson, Industrial Robots (ABB, Mitsubishi)

Certifications: Deep Learning, Reinforcement Learning, Mechanism & Robot Kinematics, Systems Engineering