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: Control Systems Engineering, Mobile Robotics, Robot Mechanics & Control

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

Experience

Manufacturing Equipment Engineer Intern April 2025 – December 2025
Tesla Inc. *Fremont, CA*
- Drove deployment of autonomous forklift AMRs with integrated SLAM, LiDAR, and vision systems, automating pallet handling across factory floors and projecting $2.04M annual cost savings through process automation
- Programmed penalty-optimized Theta* path planning for internal fleet manager, enabling real-time dynamic rerouting and reducing routing complexity by 83% for 47 automated vehicles across 3 facilities
- Engineered DFMEA enhancements for AGV operations, addressing control instabilities through PID tuning, dynamic modeling, and RFID recalibration, targeting 35% downtime reduction
- Designed powered retractable castor-wheel drivetrain for automated dolly systems, enhancing load capacity to 2,000 lbs and reducing manual handling effort by 23%

Automation Engineer July 2022 – August 2024
Hero MotoCorp Ltd *Neemrana & Tirupati, India*
- Spearheaded installation of ABB and Mitsubishi robotic arms for automated lithium-ion battery assembly, implementing teach pendant programming and reducing cycle time by 12% while increasing throughput by 85%
- Integrated inclined roller conveyor with Allen Bradley PLC system using ladder logic programming, balancing material flow between conveyors and improving throughput by 22%
- Implemented Bidirectional RRT-based path planning for Autonomous Mobile Robots, enhancing Just-In-Time material loading efficiency by 32% through automated route optimization
- Developed MATLAB-based trajectory planning for robotic arms, optimizing joint angles and path smoothness to reduce weld defects by 10%

Projects

Improved LLM-A*: Automated Path Planning System March 2025 – April 2025
- Created automated path-planning solution integrating LLM waypoint guidance with A* algorithm, cutting node expansions by 23.4% and demonstrating automation of complex routing decisions for robotic systems
- Boosted waypoint accuracy by 17.8% through systematic comparison of prompting methods, enabling reliable automated navigation guidance

Maze-Solving Robot: Automated Controller Comparison January 2025 – April 2025
- Developed MATLAB simulation framework automating unicycle robot navigation across 7 maze environments, comparing PID, LQR, MPC, and SMC controllers with MPC achieving 23% lower tracking error
- Implemented PRM-based automated path planning with systematic controller benchmarking, evaluating control effort and time-to-goal metrics to identify optimal automation strategies

3D Mapping for Automated Navigation using RTAB SLAM October 2024 – November 2024
- Integrated RTAB-Map SLAM with ZED Mini Camera in ROS2, using Bayesian loop closure and GTSAM optimization to create drift-free maps enabling automated robot navigation in GPS-denied environments
- Developed stereo visual odometry and IMU fusion system via Kalman filtering, achieving sub-centimeter accuracy for automated mobile robot positioning

Technical Skills

Technical: PLC Programming (Ladder, Structured Text), HMI/SCADA Development, Robot Programming & Integration, Industrial Networking (Ethernet/IP, PROFINET), Safety Systems, Motion Control
Programming: Python, C/C++, PLC-Ladder, MELFA-BASIC, VBA, SQL
Software: Studio 5000/RSLogix 5000, TIA Portal, GX Works3, FactoryTalk View, WinCC, Robot Studio, RoboGuide, RT Toolbox3
Hardware: Allen-Bradley ControlLogix, Siemens S7-1500, FANUC Robots, ABB Robots, Mitsubishi Robots, Servo Drives, VFDs
Libraries/Framework: ROS 2, OpenCV, Scipy, TensorFlow
Certifications: Deep Learning, Mechanism & Robot Kinematics, Systems Engineering, Certified Auditor-ISO 50001