

# 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, Control Systems Engineering, Mobile 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, Automation & Industrial Systems, Linear & Digital Control Systems

## EXPERIENCE

### Manufacturing Equipment Engineer Intern

April 2025 – December 2025

*Tesla Inc.*

*Fremont, CA*

- Led deployment and continuous refinement of autonomous forklift AMRs with SLAM, LiDAR, and 3D camera vision systems, commissioning equipment across live factory floors and projecting \$2.04M annual cost savings
- Owned DFMEA-driven reliability improvements for AGV operations, resolving derailment and control instabilities through systematic PID tuning, dynamic modeling, vibration mitigation, and RFID recalibration, targeting 35% improvement in MTBF
- Developed RAG-based AI diagnostic agent integrated with factory maintenance systems, enabling context-aware troubleshooting and reducing mean time to repair (MTTR) by 17%
- Programmed penalty-optimized Theta\* path planning for internal fleet manager, enabling real-time dynamic rerouting and reducing routing complexity by 83%

### Equipment Reliability Engineer

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 lines, performing FAT validation and reducing cycle time by 12% while increasing daily production from 400 to 840 units
- Implemented TPM-driven predictive maintenance program using sensor analytics, reducing unplanned equipment downtime by 21.4%, extending equipment lifespan by 33.6%, and improving OEE by 18%
- Integrated inclined roller conveyor with Allen Bradley PLC system, performing I/O checkout and loop tuning to resolve overloading issues and improve throughput by 22%
- Built data-driven maintenance model leveraging historical sensor data to forecast component wear, reducing MTTR by 31.2% and increasing production line availability to 94.7%

## PROJECTS

### 3D Reconstruction using RTAB SLAM

October 2024 – November 2024

- Integrated RTAB-Map SLAM with ZED Mini Camera in ROS2 to create high-precision 3D maps for equipment layout planning, enabling drift-free localization in GPS-denied manufacturing environments
- Developed stereo visual odometry and IMU fusion system using Kalman filtering, achieving sub-centimeter accuracy for precise equipment positioning and spatial mapping

### Dead Reckoning Navigation

October 2024 – November 2024

- Built autonomous navigation stack fusing VectorNav IMU and GPS data with magnetometer calibration (hard/soft-iron correction) and complementary filtering, achieving 2.3m accuracy over 3km route
- Implemented forward velocity estimation from accelerometer data with bias correction, validating dead reckoning performance against GPS ground truth for equipment tracking applications

### Maze-Solving Robot: Controller Performance Benchmarking

January 2025 – April 2025

- Developed MATLAB simulation framework comparing PID, LQR, MPC, and SMC controllers for unicycle robot navigation across 7 maze environments, with MPC achieving 23% lower mean tracking error than PID
- Implemented PRM-based path planning with systematic controller benchmarking, evaluating control effort, time-to-goal, and tracking accuracy to identify optimal control strategies for equipment automation

## TECHNICAL SKILLS

**Technical:** Equipment Installation & Commissioning, Preventive Maintenance, PLC Programming, HMI/SCADA Systems, DFMEA, Troubleshooting & Root Cause Analysis, OEE Optimization

**Programming:** Python, C/C++, PLC-Ladder, MELFA-BASIC, VBA, SQL

**Software:** RSLogix 5000, Studio 5000, TIA Portal, GX Works, FactoryTalk View, WinCC, SAP PM, MATLAB, Power BI

**Hardware:** Allen-Bradley ControlLogix, Siemens S7-1500, ABB Robots, FANUC Robots, Conveyors, Vision Systems

**Libraries/Framework:** ROS 2, OpenCV, Splunk, Scipy, TensorFlow

**Certifications:** Deep Learning, Mechanism & Robot Kinematics, Systems Engineering, Certified Auditor-ISO 50001