

# Shriman Raghav Srinivasan

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## EDUCATION

<b>Northeastern University</b> <i>Master of Science in Robotics; GPA: 3.78</i>	Boston, MA September 2024 – August 2026
• Relevant Courses: Deep Learning for Robotics, Reinforcement Learning, Robot Sensing & Navigation	
<b>SRM Institute of Science &amp; Technology (SRMIST)</b> <i>Bachelor of Technology in Mechatronics Engineering; GPA: 3.81</i>	Chennai, India June 2018 – May 2022
• Relevant Courses: Computer Vision for Robotics, Fundamentals of Robotics, Linear & Digital Control Systems	

## EXPERIENCE

<b>Manufacturing Equipment Engineer Intern</b> <i>Tesla Inc.</i>	April 2025 – December 2025 Fremont, CA
• Developed multi-camera pedestrian safety system using YOLOv8 for real-time object detection and Depth Anything V2 for monocular depth estimation, achieving 30 FPS multi-stream inference with $\pm 1\text{s}$ latency on edge compute	
• Optimized deep learning inference pipeline for GPU utilization and frame-skipping, enabling efficient multi-camera processing while maintaining detection accuracy on NVIDIA Jetson platforms	
• Developed RAG-based AI diagnostic agent using Large Language Models, integrating with factory maintenance systems for context-aware troubleshooting and reducing diagnostic response time by 17%	
• Integrated 3D pallet vision system leveraging deep learning-based depth estimation for autonomous forklift pallet localization in warehouse environments	
<b>Robotics Engineer – Projects</b> <i>Hero MotoCorp Ltd</i>	July 2022 – August 2024 Neemrana & Tirupati, India
• Designed SegNet-powered vision-guided inspection system for lithium-ion battery assembly, achieving 92.3% accuracy in surface anomaly detection through semantic segmentation, reducing rework costs by \$23,400 annually	
• Developed real-time spot-welding defect detection using Faster R-CNN optimized with TensorRT, achieving sub-50ms inference latency and reducing defect rates by 19.6%	
• Engineered CRNN-based OCR pipeline for Vehicle Identification Number (VIN) recognition, combining CNN feature extraction with RNN sequential modeling for 86.7% accuracy in dynamic conditions	

## PROJECTS

<b>LLM-Enhanced Path Planning with Neural Guidance</b>	March 2025 – April 2025
• Integrated Large Language Model (transformer-based neural network) guidance with classical A* path planning, using LLM-generated waypoints to improve search efficiency by 23.4% and reduce computation time by 31%	
• Boosted waypoint accuracy by 17.8% through systematic comparison of chain-of-thought, minimalistic, and Recursive Path Exploration prompting methods, achieving 94% valid path generation rate	
<b>Deep Neural Network Feature Extraction for Visual SLAM</b>	October 2024 – November 2024
• Combined deep neural network feature extraction with SLAM pipeline, training custom visual descriptor models achieving 12% reduction in localization drift across challenging visual environments	
• Integrated RTAB-Map SLAM with stereo vision and IMU fusion via Kalman filtering, achieving sub-centimeter accuracy (0.8cm mean error) in GPS-denied environments through learned visual features	
<b>Dead Reckoning with Sensor Fusion</b>	October 2024 – November 2024
• Built automotive navigation stack fusing VectorNav IMU and GPS data, implementing complementary filter combining magnetometer and gyroscope for robust heading estimation with 18% accuracy improvement	
• Developed forward velocity estimation from accelerometer data with neural network-based bias correction, validating dead reckoning achieving 2.3m accuracy over 3km driving route (0.08% error rate)	

## TECHNICAL SKILLS

<b>Technical:</b> Neural Network Architectures (CNN, RNN, Transformer), Object Detection (YOLO, Faster R-CNN), Semantic Segmentation (SegNet, U-Net), Model Training & Optimization (TensorRT, ONNX), LSTM, Depth Estimation, LLM/RAG
<b>Programming:</b> Python, C/C++, CUDA, SQL
<b>Software:</b> MATLAB, Gazebo, Isaac Sim, Weights & Biases, MLflow, Docker, Git
<b>Hardware:</b> NVIDIA Jetson Orin/Xavier, GPU Workstations (RTX), Industrial Cameras, Depth Cameras, LiDAR
<b>Libraries/Framework:</b> PyTorch, TensorFlow, TensorRT, ONNX, OpenCV, torchvision, Ultralytics, Hugging Face Transformers, ROS 2
<b>Certifications:</b> Deep Learning, Reinforcement Learning, Gen AI, Mechanism & Robot Kinematics, Systems Engineering