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: Deep Learning for Robotics, Robot Sensing & Navigation, 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: Computer Vision for Robotics, Fundamentals of Robotics, Linear & Digital Control Systems

Experience

Manufacturing Equipment Engineer Intern — April 2025 – December 2025
Tesla Inc. — *Fremont, CA*
- Developed multi-camera pedestrian safety system for industrial forklifts using YOLOv8 object detection and Depth Anything V2 for real-time monocular depth estimation, achieving 30 FPS multi-stream inference with ¡1s latency
- Optimized GPU utilization and implemented frame-skipping strategies for efficient multi-camera inference pipeline, reducing computational overhead while maintaining detection accuracy on edge compute platforms
- Implemented OpenCV Canny edge detection to reduce false alarms in pedestrian detection, improving system reliability in dynamic industrial environments with varying lighting conditions
- Integrated 3D pallet vision system leveraging stereo cameras and depth estimation for accurate pallet localization and autonomous pickup operations in warehouse environments

Robotics Engineer – Projects — July 2022 – August 2024
Hero MotoCorp Ltd — *Neemrana & Tirupati, India*
- Designed SegNet-powered vision-guided inspection system for lithium-ion battery assembly, achieving 92.3% accuracy in detecting surface anomalies and misalignments, reducing rework costs by $23,400 annually
- Developed real-time vision-based 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 automated Vehicle Identification Number (VIN) recognition, combining CNN feature extraction with RNN sequential modeling for 86.7% accuracy

Projects

3D Pose Estimation and Visual SLAM using RTAB-Map — October 2024 – November 2024
- Engineered ROS2-based drivers for ZED Mini stereo cameras delivering real-time 3D pose estimation, increasing robotic alignment accuracy by 30% for precision manipulation tasks
- Enhanced feature detection using SIFT-based Bag-of-Words framework, reducing pose estimation drift by 12% and enabling stable visual localization in sparse environments

GPS & IMU Sensor Fusion for Visual Navigation — September 2024 – November 2024
- Developed Kalman-filtered GPS and IMU fusion system, increasing motion planning precision by 30% and enabling reliable visual-inertial positioning for robotic navigation
- Designed real-time trajectory correction algorithms to mitigate sensor noise, reducing deviations by 16% and ensuring precise visual-based robotic control

Dead Reckoning with Magnetometer Calibration — October 2024 – November 2024
- Implemented magnetometer calibration pipeline correcting hard/soft-iron distortions, achieving 94% reduction in magnetic field error and enabling accurate heading estimation for vision-aided navigation
- Designed complementary filter fusing magnetometer and gyroscope data for robust yaw estimation, validating against IMU ground truth with 18% improvement in heading accuracy

Technical Skills

Technical: Object Detection (YOLO, Faster R-CNN), Semantic Segmentation (SegNet, U-Net), Image Classification, Depth Estimation, OCR, Visual Servoing (IBVS/PBVS), Model Optimization, Edge Detection

Programming: Python, C/C++, CUDA, SQL

Software: MATLAB, Gazebo, Isaac Sim, RViz2, Git, CVAT, Label Studio, Weights & Biases

Hardware: Industrial Cameras (Basler, FLIR), ZED Stereo Cameras, Intel RealSense, NVIDIA Jetson Orin/Xavier, GPU Workstations

Libraries/Framework: PyTorch, TensorFlow, TensorRT, ONNX, OpenCV, torchvision, Ultralytics (YOLO), ROS 2

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