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 Mechanics & Control, Control Systems Engineering, Reinforcement Learning

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 & Intelligent Systems, Design of Mechatronics Systems

Experience

Manufacturing Equipment Engineer Intern April 2025 – December 2025
Tesla Inc. *Fremont, CA*
- Deployed autonomous forklift AMRs with integrated 3D pallet vision for precise pallet manipulation, automating pick-and-place operations and projecting $2.04M annual cost savings
- Programmed penalty-optimized Theta* motion planning for fleet manager, enabling collision-free path execution and real-time rerouting for manipulation tasks across 47 vehicles
- Validated actuator torque and motion profiles for manipulation systems, ensuring reliable pallet handling under varying load conditions through dynamic modeling
- Developed multi-camera perception system using YOLOv8 and Depth Anything V2, enabling real-time object detection and depth estimation for safe manipulation operations

Robotics Engineer – Projects July 2022 – August 2024
Hero MotoCorp Ltd *Neemrana & Tirupati, India*
- Spearheaded installation of ABB and Mitsubishi robotic arms for lithium-ion battery assembly, implementing vision-guided manipulation to reduce cycle time by 12% and increase production from 400 to 720 units daily
- Designed gantry robotic systems equipped with reinforcement learning for adaptive grasping and transport of 1M+ spare parts, increasing material handling efficiency by 40%
- Developed MATLAB-based trajectory planning model for robotic arms, optimizing joint angles and path smoothness, reducing weld defects by 10% and enhancing manipulation precision
- Designed multi-sensor feedback robotic welding tip cleaning system, teaching optimized trajectory using ABB Robot Studio, reducing weld melt issues by 27%

Projects

3D Pose Estimation for Manipulation using RTAB SLAM 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 robotic manipulation in sparse environments

GPS & IMU Sensor Fusion for Manipulation Positioning September 2024 – November 2024
- Developed Kalman-filtered GPS and IMU fusion system, increasing motion planning precision of RRT algorithm by 30% and enabling reliable positioning for robotic manipulation
- Designed real-time trajectory correction algorithms to mitigate IMU noise, reducing deviations by 16% and ensuring precise robotic manipulation in complex scenarios

Maze-Solving Robot: Motion Planning with MPC January 2025 – April 2025
- Implemented Model Predictive Control for unicycle robot trajectory tracking, achieving 23% lower mean tracking error than PID through receding horizon optimization of manipulation-like motion profiles
- Developed PRM-based path planning with systematic controller benchmarking across 7 maze environments, evaluating trajectory smoothness and control effort for robotic motion applications

Technical Skills

Technical: Robot Kinematics (Forward/Inverse), Motion Planning (MoveIt, OMPL), Trajectory Optimization, Grasp Planning, Force Control, Visual Servoing (IBVS/PBVS), Collision Detection
Programming: Python, C/C++, CUDA, MATLAB, MELFA-BASIC
Software: MoveIt/MoveIt2, Isaac Sim, MuJoCo, PyBullet, Gazebo, Robot Studio, RT Toolbox3, MATLAB/Simulink
Hardware: ABB IRB Series, FANUC M-Series, Mitsubishi RV/RH, Grippers, Force/Torque Sensors, Wrist Cameras, Depth Cameras
Libraries/Framework: ROS 2, OpenCV, PyTorch, TensorFlow, Scipy, OpenGym
Certifications: Deep Learning, Reinforcement Learning, Mechanism & Robot Kinematics, Systems Engineering