

Manasvini Srinivasan

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Graduate student in Robotics and Autonomous Systems with experience in motion planning, perception, and robot control.

EDUCATION

Boston University, MS in Robotics and Autonomous Systems

Dec 2024

Relevant Courses: Machine Learning, Deep Learning, Image and Video Computing, Robot Learning, Motion Planning.

College of Engineering, Guindy, Anna University, B.E in Electronics and Communications Engineering

EXPERIENCE

Redwire Space, Software and Robotics Intern | On-site (Jacksonville, Florida)

June 2024 - Sept 2024

- Installed and configured a Universal Robot (UR5) with a Robotiq gripper, including developing configuration files for accurate hardware representation and motion planning in ROS.
- Conducted intrinsic and hand-eye calibration using a depth-sensing camera, optimizing the robot's vision system for accurate fiducial marker detection.
- Refined gripper orientation by integrating object detection algorithms with point cloud data for secure and stable grasps.
- Developed advanced motion planning strategies using MoveIt, for the UR5 robot to autonomously execute complex pick-and-place and tracking operations based on pose estimation of fiducial markers.

dotSolved Systems Inc, Software Developer | Remote (Palo Alto, California)

Nov 2022 - Aug 2023

- Devised web application which optimizes client's Snowflake Cloud data infrastructure, delivering cost-effective data storage strategies, resulting in 30% decrease in overall costs and 40% increase in efficiency.
- Utilized Python for backend development, interfacing with databases for data analysis tasks used in robotics applications.
- Implemented version control best practices and software development methodologies.

Waycool Technologies Inc, ML Engineer | Chennai, India

Jun 2021 - Sep 2022

- Improved 'IGRADE' application, for detecting food grains using images, by employing TensorFlow classifiers and object detection models, relevant for robotic perception.
- Developed and integrated APIs for effective backend and frontend communication.
- Optimized data handling and retrieval by crafting efficient SQL queries for phpMyAdmin database, improving data management processes.

SKILLS

Languages/Frameworks	Python, C++, MATLAB, SQL, Tensorflow, Pytorch, OpenCV. Arduino
Developer Tools and Environments	MoveIt, Robot Operating System (ROS), Linux Operating System.
Robotic Skills	Practical experience with 3D printing, and creating electronic prototypes.

PROJECTS

Autonomous Robotic Navigator for Hazardous Environments (ARNHE) | Boston, MA

Sep 2022 - Dec 2023

- Developed autonomous navigation system for robots in hazardous environments using Reinforcement Learning and Simultaneous Localization and Mapping (SLAM) techniques, improving navigational accuracy capabilities
- Implemented sensor fusion LIDAR, ultrasonic sensors, and cameras to create comprehensive perception system, improving operational safety by 40%.

Artificial Potential Field-Model Predictive Control Navigation | Boston, MA

Sep 2023 - Dec 2023

- Developed a hybrid navigation system combining Artificial Potential Field (APF) with Model Predictive Control (MPC) for dynamic space navigation, incorporating global path planning and obstacle avoidance.
- Assessed the model on factors including trajectory smoothness, fuel efficiency, and successful obstacle navigation, demonstrating superior navigational performance in space.

PUBLICATIONS

- **R. Ravikumar, M. V. Srinivasan, R. V. Karunakaran, A. Srikanth, & V. Vijayaraghavan**, "Deferrable Irrigation Load Optimization in Rural Microgrid Clusters," 2022 *IEEE Conference on Technologies for Sustainability (SusTech)*, Corona, CA, USA, pp. 125-131. DOI: 10.1109/SusTech53338.2022.9794162