RISHI TEJA MADDURI

Worcester, MA ◇ (508)-310-8138 ◇ rtmadduri@wpi.edu ◇ rishitejamadduri.github.io

OBJECTIVE

Full-Time Summer Internship and Co-Op Position in Perception, Mapping and Localization and Deep Learning for the year 2020-2021.

EDUCATION

Worcester Polytechnic Institute, MA Aug 2019 - Present
Master of Science in Robotics, Automation and Mechatronics Engineering GPA: 4.0/4.0
Courses: Robot Dynamics, Computer Vision, Deep Learning*, Advanced Robot Navigation*

Chaitanya Bharathi Institute of Technology Aug 2015 - May 2019
Bachelor of Engineering in Mechanical Engineering

TECHNICAL SKILLS

Skills & Packages C++, Python, NumPy, Tensorflow
Softwares ROS, GAZEBO, OpenCV, MATLAB, SolidWorks

EXPERIENCE

Graduate Researcher, WPI Jan 2020 - Present

- Working with Dr. Ziming Zhang on Point Cloud Semantic Segmentation using Graph Neural Networks.
- Approximating and discretizing sphere using Icosahedral lattice and fractals for adaptive projection of 3D points.
- Using an encoder-decoder network for image segmentation

Visvesvaraya National Institute of Technology, Research Intern May 2018 - July 2018

- Developed Bond Graphs for two-Wheel and four-Wheel differential drive mobile robots from mobile mobot kinematics using MATLAB-Simulink.
- Developed flatness based control for two wheel differential drive robot using MATLAB-Simulink

PROJECTS

LIDAR Based 3D SLAM for Autonomous Navigation Feb 2020-Present

- Using CARLA simulator for simulating autonomous vehicle and environment for 3D graph SLAM using lidar data.

Deep Prediction For Self Driving Vehicles Feb 2020-Present

- Predicting behavior of traffic actors (vehicles) to prevent accidents using the Argoverse Motion Forecasting dataset.

Semantic SLAM for Robot Navigation Jan 2020-Present

- Implementing object detection and pose estimation using visual inertial localization
- Parameterizing Objects with Quadrics to improve computation and storage efficiency
- Using semantic information from images as landmarks for localization in Graph SLAM.

Implemented ORB SLAM Dec 2019-Jan 2020

- Performed Camera Calibration using ROS.
- Implemented ORB SLAM for navigation of an RC Car
- Visualized essential Maps and covisibility Graphs using ROS topics.

Detection and Recognition of Traffic Signals Oct 2019-Dec 2019

- Identified traffic lights in images using SIFT, SURF feature detection algorithms and dynamic thresholding.
- Built an SVM Classifier for real-time detection of traffic lights for autonomous vehicles
- Implemented Deep Learning based YOLOv3 algorithm and obtained an accuracy of 93.4 %.

Stewart Platform For Organ Motion Simulation Aug 2019-Dec 2019

- Implemented the Kinematics and Dynamics of parallel manipulators for simulating the platform in MATLAB-Simulink and ROS-Gazebo environment.
- Implemented a PID Controller for imitating breathing motion of the heart in MATLAB-SIMULINK
- Fabricated the platform using Additive Manufacturing techniques.

Fabrication of Hexapod Walking robot Oct 2018-Mar 2019

- Designed a 6 legged Robot in solidworks
- Simulated the walking gait of the Hexapod in MATLAB-Simulink environment
- Fabricated the Hexapod using Additive Manufacturing techniques.

EXTRACURRICULAR AND COMMUNITY ACTIVITIES

- Placement Coordinator for the Class of 2019.
- Organized health camps across the state as a student coordinator of Street Cause, CBIT.
- Head of Design, CARPEDIUM-2017.
- Head of Design, Mechanica-2017,2018.