RISHI TEJA MADDURI

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EDUCATION

Worcester Polytechnic Institute, MA   Aug 2019 - May 2021
Master of Science in Robotics Engineering   GPA: 4.0/4.0

Chaitanya Bharathi Institute of Technology   Aug 2015 - May 2019
Bachelor of Engineering in Mechanical Engineering   GPA: 7.83/10

TECHNICAL SKILLS

Languages: C++(11, 14, 17), Python
Softwares and Libraries: Tensorflow, PyTorch, OpenCV, PCL(Point Cloud Library), ROS, GAZEBO

EXPERIENCE

Motional, Robotics Infrastructure Intern - C++14,17   June 2021 - Present 2021
- Working on building C++ libraries and components for development of Autonomous Vehicles.
- Wrote and maintained production-level code using Git.
- Contributed to technical design documentation and code reviews.

Geopipe, Inc, Deep Learning Intern - Python, Tensorflow, AWS   Jan 2021 - May 2021
- Implemented Deep Learning algorithms to process raw sensor data for classification and parameter prediction of different building roofs.
- Contributed to technical design documentation and code reviews.

Virtual Viewing, Computer Vision Intern - Python, PyTorch, Azure   Aug 2020 - Jan 2021
- Developed a novel architecture to perform semantic segmentation of 360 images by leveraging equirectangular and cubemap projections using CNNs.

PROJECTS

Lidar Obstacle Detection   PCL, CMake, C++11
- Developed a lidar obstacle detection pipeline using KD-Tree based clustering and RANSAC algorithms.
- Designed a C++ based Visualizer to display the stream of segmented and clustered point cloud with bounding boxes for obstacles.

Monocular Visual Odometry   ROS, Gazebo, OpenCV, CMake, C++11
- Designed and implemented a ROS based visual odometry pipeline using FAST feature detection and tracking.

Point Cloud Pedestrian, Cyclist and Car 3D Object Detection   Python, PyTorch, CNN
- Trained a Faster RCNN based region proposal network for 3D object detection of pedestrians, cyclist and cars through voxelized Point Cloud data
- Trained and Tested on the KITTI's 3D object detection benchmark dataset.

Visual Odometry and Depth Estimation using RNN   Python, PyTorch, LSTM
- Trained a 2 stage custom ConvLSTM based architecture for monocular depth and odometry estimation on KITTI benchmark dataset.
- Implemented a novel differential geometric module based loss function. Obtained RMSE of 1.978

Trajectory prediction For Self Driving Vehicles   Python, PyTorch, GANs
- Trained a combined GANs and LSTM based architecture for trajectory prediction of self diving cars on Argoverse Dataset.
- Obtained min ADE and FDE of 1.1741 and 2.1875 respectively.