Srikanth Malla

/srikanthmalla

Contact Information:

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Experience:

Honda Research Institute

Research Engineer (Jan'18-Present)

Worked on 3D scene understanding (3D Mapping using LiDAR sensor, sensor fusion with GPS-IMU sensors, 3D detection, joint 2D-3D multi object tracking, action recognition, future trajectory forecast). Currently working on relational reasoning and video captioning.

Carnegie Mellon University

Visiting Scholar, Machine Learning Department Katerina Fragkiadaki (May'17-Aug'17)

Worked on developing Ego-motion estimation for UAVs with low cost sensors (Monocular Camera, IMU) using Deep Learning Techniques. IMU sensor is used to over come the problem of less or no visual correspondances during fast motions.

Research Associate, Field Robotics Center Sebastian Scherer (Sept'15-April'16)

For the application of Industrial inspection using UAVs, I worked on system integration, controls and real time coverage planner to optimize flight time.

Education:

Worcester Polytechnic Institute Jan 2017 - Sept 2018

Master of Science in Robotics Engineering GPA: 4.0/4.0

Vellore Institute of Technology, Vellore, India July 2012 - May 2016

Bachelor of Technology in Electronics and Instrumentation GPA: 8.79/10

Udacity, Self Driving Car NanoDegree July 2017 - Jan 2018

Deep Learning, Computer Vision and Sensor Fusion

Relevant Proficiency:

Software and Programming: Python, C++, PyTorch, TensorFlow, OpenCV, ROS, PCL, MATLAB, C, OpenRave, Keras, Multisim, Solid Works, MoveIt, OpenAI, Gazebo, MuJoCo

Hardware: ATMega 328, MSP 430, 8051/52, Odroid U3, Udoo, Raspberry Pi, Pixhawk

Robots: Baxter, UAVs (custom built, DJI), Kuka Youbot, Turtle Bot

Projects: http://srikanthmalla.com/projects.html

Learning from Demonstration (LfD) for Manipulation https://goo.gl/c5RGUE

Hidden Markov Model is trained by extracting features from configuration space for Baxter robot to perform manipulation tasks. Several demonstrations are collected using VICON motion capture and VR Headset. Bi-RRT* is implemented to tackle dynamic obstacles.

Inventory Management Robot https://goo.gl/mmbx2V

Developed a mobile robot and equipped it with custom made 3DOF robotic arm. KINECT sensor was used for RGBD mapping and localization using RTABMap.

Inertial Odometry using LSTM

Sudden rotations couldn't be captured by visual odometry (because of no correspondences in images), an extra sensor Inertial Measurement Unit (IMU) is used to capture that motion, this gives advantage of predicting better ego motion and could be fused with visual odometry.

Sensor Fusion for Autonomous Cars

Implemented Extended and Unscented Kalman Filter techniques for fusing Lidar and Radar Data on the Udacity Simulator for Autonomous Cars.

Publications: https://bit.ly/2CIbnGB

- **S Malla**, B Dariush and C Choi. "TITAN: Future Forecast using Action Priors" **CVPR 2020 [Oral]**
- **S Malla**, B Dariush and C Choi. "Social-STAGE: Spatio-Temporal Multi-Modal Future Trajectory Forecast" **ICRA 2021**
- C Choi, **S Malla**, A Patil, J H Choi "DROGON: A Trajectory Prediction Model based on Intention-Conditioned Behavior Reasoning" **CoRL 2020**
- I Dwivedi, **S Malla**, B Dariush, C Choi, "SSP: Single Shot Future Trajectory Prediction" **IROS 2020**
- A Patil, **S Malla**, H Gang, Y T Chen, "The H3D Dataset for Full-Surround 3D Multi-Object Detection and Tracking in Crowded Urban Scenes", **ICRA 2019**
- C Choi, J H Choi, J Li, **S Malla**, "Shared Cross-Modal Trajectory Prediction for Autonomous Driving", **CVPR 2021**