Madhu Vankadari

Researcher

I am a machine learning reseracher and I develop state of the art machine learning techniques on robots to make them intelligent. Please visit my website for more details

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WORK EXPERIENCE

Researcher
TCS Innovation Labs

07/2016 – Present *Bangalore, India*

Achievements/Tasks

- Developing machine learning algorithms such as Reinforcement Learning, CNN, etc. in the domain of robotic perception and motion planning. Main focus is to out perform state of the art methods and create new bench marks in the robotics field.

Summer Research Intern
IIT Kharagpur

05/2015 – 08/2015 *Kharagpur, India*

Achievements/Tasks

- Developing a simulation and hardware setup for a humanoid robot to implement Reinforcement Learning algorithms such as Q-Learning, LSPI , PI etc. in order to plan a dynamically stable gait.

PROJECTS

UnDeMoN (03/2018 – Present)

- Its an unsupervised deep network for estimating depth, ego motion and optical flow for a given sequence of monocular images.

Reinforcement learning control approach for tracking and landing of a UAV (05/2017 – 10/2017)

- Given an off the shelf drone, with out any explicit information regarding its dynamic model, the flight control will be learned using an RL method named LSPI.

Gradient descent approach for controller design for a UAV (12/2016 – Present)

- An adaptive PID controller is developed to make sure the stability of the drone in windy environments by using gradient descent to tune its parameters dynamically.

Path finding robot using Q-learning (08/2015 – 12/2015)

- Q learning is used as shortest path finder from stating point to the goal point and then that path is fed to UGV to reach the goal

EDUCATION

Bachelors in Mechanical Engineering
IIIT R.K Valley (RGUKT)

07/2012 – 05/2016 *CGPA: 8.88/10.0*

SKILLS

TensorFlow | ROS | Gazebo | Python | C++ | Scikit-learn | MoveIt

PUBLICATIONS

Madhu Babu V, Kaushik Das, Anima Mujumder, Swagat Kumar "UnDEMoN 2.0 : Improved Depth and Ego-Motion estimation through Deep Image Sampling

In review

Madhu Babu V, Kaushik Das, Anima Mujumder, Swagat Kumar "UnDEMoN: Unsupervised deep network for depth and pose estimation",International Conference on Intelligent Robots and Systems (IROS 2018)- Accepted (06/2018)

Madhu Babu V, Kaushik Das, Swagat Kumar "A Reinforcement Learning Approach towards Autonomous Control and Landing of a Quadrotor", International Conference on Unmanned Aerial Systems (ICUAS 2018) - Accepted (06/2018)

Madhu Babu V ,Kaushik Das, Swagat Kumar "Designing of Self Tuning PID Controller for AR Drone Quadrotor", International conference on advanced robotics (ICAR 2017) (05/2017)

Madhu Babu V ,Kaushik Das, Swagat Kumar "Autonomous Leader-Follower Architecture of A.R. Drones in GPS Constrained Environments", Advances in Robotics (AIR 2017) (07/2018)

COURSES

Convolutional Neural Networks for Visual Recognition by Stanford University (04/2017)

Course on Reinforcement Learning by University College London (03/2017)

Robotics: Perception by University of Pennsylvania (09/2017)

Robotics: Estimation and Learning by University of Pennsylvania (10/207)

AREAS OF INTEREST

Machine Learning | Control | Perception