Madhu Vankadari

Researcher

I am a machine learning researcher and I apply state of the art machine learning techniques on robots to make them intelligent.

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WORK EXPERIENCE

Researcher
TCS Innovation Labs ↗

07/2016 – Present   *Bangalore, India*

Tata Consultancy Servicces

Achievements/Tasks

- Developing machine learning algorithms such as Reinforcement Learning, CNN, etc. in the domain of robotic perception and motion planning. Main focus is 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*

Indian Institute of Technologies

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
Rajiv Ganhi University of Knowledge Technologies (IIIT) ↗

07/2012 – 05/2016   *CGPA: 8.88/10.0*

SKILLS

TensorFlow   Robot Operating System   Gazebo
Python   Cpp   Scikit-learn

PUBLICATIONS

Madhu Babu V, Kaushik Das, Anima Mujumder, Swagat Kumar "UnDEMoN: Unsupervised deep network for depth and pose estimation",European Conference on Computer Vision (ECCV) (09/2018)
In review

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). (06/2018)
In review

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) ↗

Madhu Babu V ,Vamshi Krishna U, Shehansha SK "An Autonomous Path Finding Robot Using Q-Learning",International Conference on Intelligent Systems and Control (ISCO 2016). (01/2016) ↗

COURSES

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

Machine Learning by Stanford University (08/2016) ↗

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) ↗

AERAS OF INTEREST

Machine Learning   Control   Perception