Madhu Babu V

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Professional Summary

1.7+ years of experience in software development in python, C, C++ and deployment of algorithms on robots.

Specialized in development of Machine Learning algorithms for vision and control on UAVs and UGVs.

Expert in modeling and implementing robotic tasks such as path planning, motion planning in both real world and simulations using Gazebo and ROS.

Experience

- **TCS Innovation Labs** — Bangalore, India
  Researcher — *Jul 2016 - Present*
- **Indian Institute of Technology, Kharagpur** — Kharagpur, India
  Summer Research Intern — *May 2015 - Jul 2015*

Education

Rajiv Gandhi University of Knowledge Technologies (A.P IIIT) — AP, India

Bachelors in Mechanical Engineering; GPA: 8.88/10.0 — Jun. 2012 - May. 2016

Skill Sets

- **Programming Languages**: Python, C, C++
- **Softwares**: ROS, Gazebo, OpenCV, Matlab, Octave, Ardupilot
- **Packages**: TensorFlow, Scipy, Numpy, Scikit
- **Operating Systems**: Windows, Linux
- **Version Control Systems**: Git

Projects

Autonomous UAV tracking and landing on a UGV using least squares policy iteration (LSPI)	Aug-2017
Building a custom quadrotor using PixHawk	Jun-2017
Way point navigation for quadrotor using PTAM with gradient descent PID controller	Feb-2017
Autonomous leader follower architecture for drones	Oct-2016
Dynamically stable gait generation for biped robot	May-2016
Autonomous path finding robot using Q-learning	Jan-2016

Publications

Madhu Babu V, Kaushik das, Swagat Kumar. *Designing of Self Tuning PID Controller for AR Drone Quad rotor*, in proc 18th International Conference on Advanced Robotics (ICAR) 10-12 July 2017.

Madhu Babu V, Kaushik das, Swagat Kumar. *Autonomous Leader-Follower Architecture of A.R. Drones in GPS Constrained Environments*, in proc 3rd International Conference on Advances in Robotics (AIR) Jun 28-Jul 2 2017.

Madhu Babu V, Vamshi Krishna U, Sehansha Sk. *Autonomous Path Finding Robot Using Q Learning*, in proc 10th International Conference on Intelligent Systems and Control (ISCO) 7th to 8th Jan 2016.

Madhu Babu V, GVV Surya Kiran, SK Sameer, Roshan Kumar Hota, Cheruvu Shiv Kumar. *Stabilization of Posture of Humanoid Using PID Controller in Gazebo Simulator Using Robot Operating System (ROS)*, in proc CAD/CAM, Robotics and Factories of the Future, 2016

In review

Madhu Babu V, Kaushik das, Swagat Kumar. *A reinforcement learning approach towards control and landing of autonomous landing of quadrotor UAV* in review of European Control Conference 2018.

Chinmay Shinde, Kaushik das, **Madhu Babu V**, Swagat Kumar. *Multi Target Tracking using UAV Network* in review of American Control Conference Jun-2018.

Courses

Machine Learning by Stanford University	Coursera
Convolutional Neural Networks for Visual Recognition by Stanford University	CS231n
Robotics: Perception by University of Pennsylvania	Coursera
Robotics: Estimation and Learning by University of Pennsylvania	Coursera
Course on Reinforcement Learning by University College London	UCL website

Outreach and Service

Founder & Coordinator

Robotics and Innovation club RGUKT, (A.P IIIT)

Cultural Fest Coordinator

Abhiyanth'17, Viprastha'16