Ratnesh Madaan

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Webpage: ratneshmadaan.github.io

Education

Master of Science, Robotics — August 2018, expected
Carnegie Mellon University, Pittsburgh, PA
Advisor: Prof. Sebastian Scherer

Bachelor of Technology, Mechanical Engineering — May 2015
Indian Institute of Technology Roorkee

Publications

Wire Detection using Synthetic Data and Dilated Convolutional Networks for Unmanned Aerial Vehicles. **Ratnesh Madaan**, Daniel Maturana, Sebastian Scherer. International Conference on Intelligent Robots and Systems (IROS) 2017.
Finalist, Best Application Paper Award.

Multi-view Reconstruction of Wires using a Catenary Model. **Ratnesh Madaan**, Michael Kaess, Sebastian Scherer. Submitted to International Symposium on Experimental Robotics 2018.

DROAN - Disparity-space Representation for Obstacle AvoidaNce: Enabling Wire Mapping & Avoidance. Geetesh Dubey, **Ratnesh Madaan**, Sebastian Scherer. Submitted to IROS 2018.

Deep Flight: Learning Reactive Policies for Quadrotor Navigation with Deep Reinforcement Learning. **Ratnesh Madaan**, Dhruv Saxena, Rogerio Bonatti, Sebastian Scherer. Workshop on Learning Perception and Control for Autonomous Flight, Robotics: Science and Systems (RSS) 2017.

Predicting orientations under manipulation actions. **Ratnesh Madaan**, Robert Paolini, Erol Sahin, Matthew T. Mason. Robotics Institute Summer Scholar Journal, 2015.

Experience

Graduate Research Assistant — Fall 2016 - Present
Air Lab, Robotics Institute, CMU
- Wire Detection via Semantic Segmentation and Synthetic Data
- Wire Reconstruction via a Catenary Model based Multiview algorithm
- Learning Adaptive Sampling Distributions for Motion Planning via Imitation

Research Associate I — Sept - Dec 2015, Feb - May 2016
Air Lab, Robotics Institute, CMU
Wire Detection, Visual Servoing for UAVs

Robotics Institute Summer Scholar — Summer 2015
Manipulation Lab, Robotics Institute, CMU
Predicting orientations of manipulative actions

Google Summer of Code — Summer 2015
ROS-Industrial, Open Source Robotics Foundation
Development of a high level planning library utilizing on OMPL and Descartes

Intern — Summer 2014
KUKA Robotics India
Development of a teleoperation app for KUKA youBot using Leap motion sensor

Languages and Frameworks	C++, Python, Matlab; ROS, OMPL, Pytorch
Graduate Coursework	• 16-811: Math Fundamental For Robotics • 16-720: Computer Vision • 10-703: Deep Reinforcement Learning and Control • 10-701: Machine Learning • 16-782: Planning and Decision-making in Robotics • 16-831: Statistical Techniques in Robotics • 16-833: Robot Localization and Mapping • 16-711: Kinematics, Dynamic Systems, and Control
Selected Projects	https://ratneshmadaan.github.io/projects/
Miscellaneous Projects	https://ratneshmadaan.github.io/code/