Abhinav Dadhich

resbyte.github.io
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EDUCATION

NARA INSTITUTE OF SCIENCE AND TECHNOLOGY
M.Eng. in Information Science
Expected Oct 2015 | Nara, Japan
Average Grade: A; Cum GPA: N/A

INDIAN INSTITUTE OF TECHNOLOGY, JODHPUR
B.Tech. in Electrical Engineering,2013
Jodhpur, India
Cum. GPA: 7.43 / 10.0

LINKS

Github:// **ResByte**
LinkedIn:// **adadhich**
Quora:// **Abhinav-Dadhich**

COURSEWORK

GRADUATE

Robotics
Computer Vision
Foundations of Artificial Intelligence
Ambient Intelligence
Computational Neuroscience
Computer Graphics

UNDERGRADUATE

Data Structure and Algorithms
Introduction to Programming
Signal Processing
Digital Electronics and Microprocessor Technology
Control Systems

SKILLS

PROGRAMMING

Python • C++
Familiar:
Robotics Operating System(Package)• Gazebo •Matplotlib • Boost Graph Library •
Point Cloud Library • OpenCV • Numpy • Scikit-Sklearn •Android • LaTeX
Robots:
TurtleBot • Robovie MR2 • Quadcopter

EXPERIENCE

KYUSHU INSTITUTE OF TECHNOLOGY | Research Student, Shibata Lab
Supervisor : Dr. Tomohiro Shibata | August 2014 - present | KitaKyushu, Japan

- Problem: Robust mapping for mobile robot navigation in changing environments.
- Aim: Maintain an updated map for robots working for long periods such as weeks.
- Method: Proposed a novel inference approach on occupancy grids to model different dynamic changes in map.
- Implemented inference model for occupancy grids using Explicit-state Duration HMM and tested it on Long term dataset.

PANASONIC | Research Intern
May 2012 - July 2012 | Gurgaon, India

- Delivered an Android application to automate the end to end hospital process.
- App Functions: Interaction with NFC (Near field Communication) tags and saving data at the centralised server
- Team : 3 People, Mentor: Nikhil Nahar | Panasonic Research and Development Centre India

PUBLICATION

MODELING OCCUPANCY GRIDS USING EDHMM FOR DYNAMIC ENVIRONMENTS Dadhich et al. | Accepted
AIR-2015, Goa, India

This paper presents a novel method to infer gradual changes in dynamic environment and incorporate them in map generation. We model the environment using an occupancy grid structure with the state of each grid cell is determined in an online fashion using an Explicit-state-Duration Hidden Markov Model (EDHMM). Our work presents filtering of occupancy grid into dynamic and static. We tested our method in simulation as well as on a real world dataset. Our results show robust detection of dynamic changes in the grid map, even in the presence of occlusion.

RESEARCH

MATHEMATICAL INFORMATICS LAB | Masters Thesis
Oct 2014 - Present | Ikoma, Japan

- Supervisor : Dr. Kazushi Ikeda, Dr. Tomohiro Shibata.
- Problem: Robot navigation in dynamic environments is challenging.
- Solution: Maintain robust map for navigation by incorporating observed changes.
- Over Long periods of working of robots, a large sequential map data is generated. Inferring the hidden states in such sequential data. Working towards Publication

EXTRA-CURRICULAR

- Hiking
- NAIST Cricket Club
- Photo Styling