

Abhinav Dadhich

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EDUCATION

NARA INSTITUTE OF SCIENCE AND TECHNOLOGY

M.ENG. IN INFORMATION SCIENCE, 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 - July 2015 | 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.

RAPYUTA ROBOTICS | ROBOT NAVIGATION INTERN

Oct 2015 - present | Tokyo, Japan

- Developing Navigation algorithms using RGBD sensors for Aerial Vehicles.
- Tools: ROS, OpenCV, PCL, Eigen, Boost, Linux.

PUBLICATION

MODELING OCCUPANCY GRIDS USING EDHMM FOR DYNAMIC ENVIRONMENTS DADHICH ET AL.

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

- Title: Map Inference Adaptive to Low-Dynamic Objects for Mobile Robot Navigation
- Supervisor : Dr. Kazushi Ikeda, Dr. Tomohiro Shibata.
- Problem: Various dynamic objects in environment cause error in navigation.
- Solution: Maintain robust map for navigation by incorporating observed changes.
- Over Long periods of working of robots, a large sequential map data is generated. Infer the dynamic property in such sequential data by modelling it as Hidden Markov Model(HMM). Published.

EXTRA-CURRICULAR

Hiking Small Mountains | Historical Fiction Reading | Photo Styling