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EDUCATION

Worcester Polytechnic Institute (WPI), Worcester, MA

Master of Science, Robotics Engineering

GPA: 4.00 / 4.00

May 2021 (Expected)

Birla Institute of Technology and Science, Pilani, Goa, India

B.E (Hons), Mechanical Engineering

GPA: 7.73 / 10.00

May 2016

SKILLS

Programming : C++/C, Python, MATLAB

Tools : ROS, Gazebo, CARLA, Git, OpenCV, Linux

IP/PUBLICATIONS

- **Towards finding the minimum time for graph exploration using multiple robots**

Sanjeev Kannan, Prajakta Surve, Leena Vachhani and Arpita Sinha

(Intend to submit at IEEE Robotics and Automation Letters (RA-L))

- **Thermoelectric Heat Exchanger for an HVAC system**

Utility Patent Filed : US 16/107,900

WORK EXPERIENCE

IIT Bombay, Mumbai, India

Senior Research Fellow - Autonomous Robots and Multi-robot Systems Lab

Aug. 2018 – Jul. 2019

- Implemented and simulated a high level path planning algorithm for an autonomous multi agent system with decentralized beacon-only communication method to explore acyclic and cyclic graphs
- Developed and proved algorithm to find quickest possible exploration time and ideal robot starting positions

Johnson Controls, Pune, India

Design Engineer - Fan Group, Air Systems Engineering Division

Jul. 2016 – Jul. 2018

- Developed 3D CAD models and manufacturing drawings for exhaust fan models

PROJECTS

Motion Planning for assisted driving in an autonomous car

Course Project for Grad course - Motion Planning

Jan. 2020 – . Present

- Implementing Lane Keeping, Lane Changing and Adaptive Cruise Control on an autonomous vehicle on CARLA simulator

Quadrotor Motion Planning

Course Project for Grad course - Robot Dynamics

Aug. 2019 – Dec. 2019

- Created a path-planner module for a quad-rotor to navigate multiple goal points using RRT-star
- Achieved obstacle avoidance by enlarging obstacles by robot size to treat robot as a point in the planning problem
- Developed and implemented unit tests to validate modules
- Helped in integrating path planning module with controller

Controller Design for Path tracking in a Mobile Robot

Course Project for Grad course - Robot Control

Aug. 2019 – Dec. 2019

- Implemented PID control algorithm and state estimation for navigation on a Turtlebot 2 robot.
- Implemented the algorithm on a ROS-Gazebo simulation environment and a physical robot.

Point Cloud Registration

Course Project for Grad course - Computer Vision

Aug. 2019 – Dec. 2019

- Implemented two methods for point cloud registration - ICP (Iterative Closest Point) and Go-ICP (Global optimal ICP)

RELEVANT ONLINE COURSES

Courses: AI for Robotics (Georgia Tech/Udacity CS373), MATLAB Onramp

ACTIVITIES AND LEADERSHIP

- Chief Coordinator : Aerodynamics Club, BITS Pilani Goa Campus
- Stood first in the club level and third at the Area level Humorous Speech Contest at Toastmasters
- Achieved the *Competent Leader* title at Toastmasters
- Mentored more than 5 members in public speaking and leadership roles at Toastmasters
- Initiated the soccer team formation across Johnson Controls' Pune offices