

Sanjuksha Nirgude

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Objective

Summer internship in Robotics Engineering .

Education

Worcester Polytechnic Institute (WPI)

Master of Science in Robotics Engineering, GPA – 4.0.

Worcester, MA.

May 2019

University of Pune (UoP)

Bachelor of Mechanical Engineering, Agg-71 % .

Pune, India.

June 2016

Relevant Courses: Deep Learning for Advance Robotic Perception, Synergy of Human and Robot, Foundations of Robotics, Robot Control, Robot Dynamics, Swarm Intelligence.

Skills

ROS, Reinforcement Learning, Python, Tensorflow, SOLID EDGE & CATIA, Arduino, MATLAB, Latex, Buzz, ARGoS, MS Office (word, power point, excel)

Internships

Machine Learning Intern Cere Labs Pvt Ltd.

Mar-June 2016

- Demonstrated application of Reinforcement Learning(RL) method, specifically the Q-learning algorithm by making a crawling robot move towards a wall by itself.
- Manufactured and trained the CURL(Crawling using RL) robot using Raspberry Pi as the controller and implemented the algorithm in Python.

Projects

Robot Learning from Demonstration: Trinia via MoCap , WPI.

Aug-Dec 2017

- Tele-operated a nursing robot (Baxter) using MoCap system. Used Reinforcement learning for grasping objects.

Detection, Recognition & Pose Estimation of Tabletop Objects, WPI.

Aug-Dec 2017

- This project focused on the problem of cleaning a messy table using Deep Neural networks.
- Developed a convolutional neural network that determined the orientation of the object placed on a table.

Tele-operation of A Robotic Arm Using IMU, WPI.

Aug-Dec 2017

- Integrated an IMU sensor with the Arduino and used it to communicate with a robotic arm in simulation via ROS.

Collective transport of Concave objects using a robot swarm

Present

- Occlusion based collective transport strategy is being used for transport of the objects.
- The algorithm will be written in buzz and the experiments will run in ARGoS simulator.

Baxter Kinematics and Dynamics Library

Jan 2017- Present

- Developing a python library for forward and inverse, pose and velocity kinematics and dynamics for Baxter robot.

Fuzzy Logic Controller for Indoor Navigation of Mobile Robots

Present

- Designing a fuzzy logic controller (FLC) for a mobile robot navigating in an unknown indoor environment using tracking FLC and Obstacle avoidance FLC.

ASIA PACIFIC ROBOTICS CONTEST (ABU ROBOCON)

Badminton Playing Robot , UoP.

2014-2015

- This dealt with the mechatronic design approach and related technologies for badminton playing robots.
- Robot uses non-modified shuttles and rackets, which are detected and localized using purely visual information.

Hybrid Robot driving Eco robot through an indirect energy source, UoP.

2015-2016

- Designed and manufactured two robots (eco robot, hybrid robot) for carrying equipment in hazardous environments using Arduino as the controller.
- The eco robot used wireless charging from the hybrid robot to travel through a zig-zag path using color sensors for line following.

Extra-curricular

- Taught Robotics to middle school children by organizing workshops and seminars.
- Volunteered at a local NGO Sanjeevani Foundation for 6 years.
- Secured 1st position in district level archery competition and participated in state level.
- Participated in Entrepreneurship Awareness Camp (MITCON) 2014.