

Vishnu Prem

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EDUCATION

University of Pennsylvania, School of Engineering & Applied Science Philadelphia, PA
Candidate for Master of Science in Engineering in Robotics – GPA: 3.33/4 May 2021
Courses: Design of Mechatronic Systems, Introduction to Robotics, Applied Machine Learning, Machine Perception,
Learning in Robotics, Deep Learning for Data Science
Manipal Academy of Higher Education, School of Engineering & IT Dubai, UAE
Bachelor of Technology in Mechatronics Engineering; minor: Robotics and Automation —GPA: 9.46/10 Oct 2018
Research Abroad: University of Salford, UK in Spring 2018

EXPERIENCE

Autonomous Systems and Advanced Robotics Research Centre- University of Salford Manchester, UK
Undergraduate Student Researcher Feb 2018 – May 2018

- Development of navigation and localization software stack using ARIA API for Pioneer 3DX robot platform
- Incorporated RGB-D camera and deep learning object detection model for landmark based localization
- Implemented complementary sensor fusion model of multiple sonar sensors for obstacle avoidance

Mimic Production Berlin, Germany
Robotics and Animatronics Intern Mar 2019 – May 2019

- Developed software pipeline in Python for animatronic robot control on embedded Linux platform

Pico International Dubai, UAE
Intern- Digital Media & IT department Jul 2019 – Aug 2019

- Developed embedded software for mechatronic exhibits at events and exhibitions

RELEVANT PROJECTS

[portfolio: vishnuprem.github.io for more]

FMT* Planning framework for Autonomous Cars (2019)

- Developed a ROS service node to serve as a global mission planner for Autonomous Vehicles that incorporates Fast Marching Tree algorithm in C++
- Integrated RVIZ to visualize the generated search tree and introduced a heuristic to increase speed efficiency

RRT-Connect (2019)

- Sampling based algorithm for a 5 DOF Lynx robot to plan in 3D space implemented and simulated in MATLAB

Artificial Potential Fields (2019)

- Real time motion planning for 5 DOF robot manipulator equipped with LIDAR implemented in MATLAB for planning in an environment with dynamic obstacles

A* Planner (2019)

- C++ implementation of path planning algorithm for a 2D grid discretized environment

Semi-Autonomous Battle-bot (2019)

- Fabricated and programmed differential drive robot to localize using IR beacon in embedded C
- Set up remote control via UDP and implemented PD control for autonomous navigation

RL for Bipedal walking (2017)

- Reinforcement Learning to train a two-legged agent to walk using Python and OpenAI Gym

COMPUTATIONAL SKILLS

C++ 11, Python, Embedded C, MATLAB, Java, Linux, ROS, git

ACTIVITIES & OTHER ACHIEVEMENTS

Volunteer Head of Mechatronics Department for annual tech festival Technovanza'17 at MAHE Dubai • 1st Place in 'Institute of Physics' Young Lecturer Competition '18 at Manchester Metropolitan University, UK • Best Actor Award at Interhouse Drama Competition '14 SEPS, Abu Dhabi • Best Speaker at Interhouse Debate Competition'14 SEPS, Abu Dhabi

References available upon request