Vishnu Prem

email vprem@seas.upenn.edu • **website** vishnuprem.github.io • **linkedin**.com/in/vishnuprem6/ • **phone** +1 (267)-916-6313

EDUCATION

University of Pennsylvania, School of Engineering & Applied Science — *Philadelphia, PA*
Candidate for Master of Science in Engineering in Robotics – *GPA: 3.3/4* — *May 2021*
Courses: Design of Mechatronic Systems, Introduction to Robotics, Applied Machine Learning

Manipal Academy of Higher Education, School of Engineering & IT — *Dubai, UAE*
Bachelor of Technology in Mechatronics Engineering—*GPA*: 9.46/10; Minor: Robotics and Automation — *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*

- Created algorithms for mobile robot localization using computer vision with depth camera
- Implemented obstacle avoidance using sensor fusion of multiple sonar sensors
- Deployed deep learning-based object detection model and retrained on new classes

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

- Developed software pipeline in Python for animatronic control of robot face with RaspberryPi

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

- Implemented and tested software for mechatronic exhibits at events and exhibitions

TECHNICAL SKILLS

- *Software*: C, C++, Python, ROS
- *Libraries:* OpenCV, Numpy, PyTorch, OpenAIGym

RELEVANT PROJECTS

[portfolio: vishnuprem.github.io **for more]**

FMT* Planning framework for Autonomous Cars *(2019)*
- Fast marching tree planner implementation in C++ and ROS framework
- Tracking of generated path using pure pursuit algorithm with simulation in RViz

Semi Autonomous Robot *(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

A* Planner *(2019)*
- C++ implementation of grid based planning algorithm

RRT for Robot arm *(2019)*
- RRT implementation for 5DOF Lynx robot manipulator

Chess Playing Robot *(2017)*
- Developed computer vision algorithm using Python and OpenCV for detecting move made by human
- CAD design and 3D printing of robot arm and gripper to pick and place chess pieces

RL for Bipedal walking *(2017)*
- Built and optimized a NN controller with genetic algorithm for a two-legged agent using Python and OpenAI Gym

ACTIVITIES & OTHER ACHIEVMENTS

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