**Vishnu Prem**

**email** vprem@seas.upenn.edu • **website** <vishnuprem.github.io> • [**linkedin**.com/in/vishnuprem6/](https://www.linkedin.com/in/vishnuprem6/) • **phone**  +1 (267)-916-6313

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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

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**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 P3DX 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

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**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

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**COMPUTATIONAL SKILLS**

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

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**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

***References available upon request***