**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 *May 2021*

*Courses: Design of Mechatronic Systems, Introduction to Robotics, Applied Machine Learning [current courses]*

**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

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**EXPERIENCE**

**GRASP Lab - University of Pennsylvania** Philadelphia, PA

*Research Assistant Oct 2019 - current*

* Modelling LIDAR noise for simulating occupancy grid based planning methods

**Mimic Production** *Berlin, Germany*

*Robotics and Animatronics Intern*   *Mar 2019 – May 2019*

* Designed and prototyped mechanism for realistic humanoid robot face
* Developed software pipeline for animatronic control of robot face in Python

**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 based on landmark recognition using RGBD sensor
* Implemented tangent bug algorithm using sonar sensors for path planning in unknown environment
* Deployed deep learning based object detection model and retrained on new classes

**Pico International**  *Dubai, UAE*

*Intern- Digital Media & IT department* Jul *2019 – Aug 2019*

* Implemented large scale mechatronic solutions for events and exhibitions

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**TECHNICAL SKILLS**

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| * *Programming Languages*: C++, Python, Java | * *CAD software*: SolidWorks, CREO Parametric, Fusion 360 |

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**A\* Planning for robot** *(current)*

* Implementing Path planning for differential drive robot in C++ while performing Localization using IR beacon

**FMT Planner** *(current)*

* Fast marching tree planner implementation in C++ with simulation in ROS

**RRT Planner for Manipulator** *(2019)*

* Implemented an RRT Path Planning algorithm for a 5 DOF robot manipulator

**Chess Playing Robot** *(2017)*

* Developed image processing 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 control** *(2017)*

* Built and optimized a NN controller with genetic algorithm for a two-legged agent using Python and OpenAI Gym

**Tic-Tac-Toe Program** *(2013)*

* C++ program that plays Tic-Tac-Toe against a human

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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