**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, Deep Learning for Data Science, Learning in Robotics*

**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, US*

*Research Assistant Jan 2020 – Present*

* Developing SLAM software for mapping unknown environments with multiple drones equipped with LiDARs

**Autonomous Systems and Advanced Robotics Research Centre - University of Salford** *Manchester, UK*

*Undergraduate Student Researcher-Guide: Dr. Theo Theodoridis Feb 2018 – May 2018*

* Development of navigation and localization software stack using ARIA API for Pioneer P3DX robot platform
* Incorporated RGBD camera and deep learning object detection model to localize based on indoor landmarks
* Implemented complementary sensor fusion model for 8 sonar sensors for obstacle avoidance
* Retrained object detection model on new classes using transfer learning

**Mimic Productions** *Berlin, Germany*

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

* Developed software pipeline on embedded Linux platform in Python for electromechanical humanoid robot control

**Pico International** *Dubai, UAE*

*Mechatronics Intern Oct 2018 – Jan 2019*

* Developed embedded software in Python and C++ for mechatronic projects at events and exhibitions

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**TECHNICAL SKILLS**

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

**RELEVANT PROJECTS** [**[portfolio:** vishnuprem.github.io **for more]**](https://vishnuprem.github.io/)

**Semi-autonomous Battlebot:** Programmed embedded platform for robot localization using IR beacon and incorporated PD control for autonomous navigation

**Deep Learning for Violence Detection** *(2019):* Developed video preprocessing pipeline and extracted optical flow data to train convolutional neural network to detect actions deemed to be violent from videos using PyTorch and OpenCV

**Chess Playing Robot** *(2017):* Developed computer vision algorithm in Python using OpenCV for tracking chess pieces and move identification*.* Programmed embedded platform for electromechanical control of robot arm

**Motion Tracker** *(2017):* Surveillance camera developed on embedded platform for tracking human motion using OpenCV and Python

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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