

# 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: 3.3/4 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

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## EXPERIENCE

**Penn Engineering Online Learning** Philadelphia, PA  
Teaching Assistant Oct 2019 - current

- Supporting online learners by answering queries on forums for 6 Robotics Specialization courses on Coursera

**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

- Programming Languages: C, C++, Python, Java
  - Libraries: OpenCV, PyTorch, OpenAIGym
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## RELEVANT PROJECTS

[portfolio: vishnuprem.github.io for more]

### CNN for Violence Detection (2019)

- Implemented dual stream CNN architecture for detecting violence from videos using PyTorch

### FMT\* Planner (2019)

- Fast marching tree planner implementation in C++ with simulation in RViz using ROS

### A\* Path Planner (current)

- C++ path planning algorithm implementation

### 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 ACHIEVEMENTS

Volunteer Head of Mechatronics Department for annual tech festival Technovanza'17 at MAHE Dubai • 1<sup>st</sup> 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