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, 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

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 visual landmarks and 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 Python software pipeline in embedded Linux platform for animatronic control of humanoid robot face
- Constructed hardware prototype for facial muscle mechanisms

Pico International — *Dubai, UAE*
Intern- Digital Media & IT department — Oct *2018 – Jan 2019*

- Developed embedded software and electronic circuits 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++ with ROS framework
- Tracking of generated path using pure pursuit algorithm with simulation in RViz

Semi-Autonomous Battle-bot *(2019)*

- Fabricated hardware and programmed microcontroller to localize robot using IR beacon in embedded C
- Set up remote control via UDP and implemented PD control for autonomous navigation

CNN for Violence Detection *(2019)*

- Extracted frames and optical flow features from videos using OpenCV
- Trained dual stream CNN for detecting violent actions from videos using PyTorch

Chess Playing Robot *(2017)*

- Developed computer vision algorithm using Python and OpenCV for detecting move made by human
- Integrated motors and wrote embedded software on microcontroller for robot arm control

RL for Bipedal walking *(2017)*

- Used Reinforcement Learning to train a two-legged agent to walk 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

References available upon request