**Animesh Nema**

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# Education Worcester Polytechnic Institute (WPI) Worcester, MA

Master of Science in Robotics Engineering, GPA- 4/4 May 2019

**Related Courses:** Deep Learning, Computer Vision(Udacity Nanodegree), Robot Dynamics, Robot Controls, Swarm Intelligence, Foundations of Robotics, Smart Materials, Motion Planning\*

\*To be completed by December 2018

# Sri Ramaswamy Memorial University (SRM) Tamil Nadu, India

Bachelor of Technology in Mechanical Engineering, CGPA- 3.71/4 May 2017

**Skills**

**Programming Skills:** Python, MATLAB, C++, Buzz

**Software Skills:** PyTorch, Tensor Flow, Keras, OpenCV, ROS, Catia, Latex, SolidWorks, Microsoft Office, Argos

**Projects**

**Predicting Grade of Road for Autonomous Vehicles Using Supervised Deep Learning. WPI** Deep Learning September–December 2017

* Built a Convolutional Neural Network and trained it on a labeled dataset of IMU and GPS readings to predict the grade of the road ahead of the autonomous vehicle.
* Carried out video parsing, data filtering and data augmentation. Analyzed the performance of the model by observing the real-time video implementation of the results.

# Facial Key point Detection WPI

Computer Vision / Deep Learning July 2018

* Designed an algorithm to detect 68 key points on a face (to identify features such as eyebrows, eyes, nose, lips and facial contour) by applying computer vision and deep learning techniques.
* Applied various transformations on the image dataset and developed a CNN using PyTorch.

# Adaptive trajectory Control of a Robotic arm subject to Varying Payloads. WPI

Robot Controls March 2018- April 2018

* Modelled an adaptive trajectory tracking controller on a 2-link Robotic arm to carry objects of unknown masses while maintaining its desired path.
* Modified the conventional approach, resulting in a simplified and much more efficient performance..

# Robotic Control of Surgical Laser Waveguide using ABB IRB120 Robot WPI

Robot Dynamics February 2018- April 2018

* Performed dynamic modeling and control of the ABB IRB120 robot mounted with a laser waveguide, to follow certain trajectories and carry out tissue ablation. Developed a Python code for generating trajectories.
* Simulated using Gazebo and MoveIt.

# Three Finger Robotic Gripper with Tactile Sensors. SRM

Final Year Project January–May 2017

* Manufactured a 3-finger robotic gripper via 3D printing and tip of the gripper was mounted with tactile sensors (force resistive sensors) to determine appropriate minimum grasping force in order to avoid slip.
* Actuated all the fingers by a single servo motor. Modelled using SolidWorks and programmed using Arduino.

# Occlusion based Collective transport of concave objects using Khepera IV robots WPI

Swarm Intelligence March 2018- April 2018

* Decentralized collective transportation of concave objects using Khepera IV robots.
* Implemented occlusion-based transport strategy on the object and used Argos simulator and Buzz programming language.

# Extra-curricular Activities

* Co-founded an NGO called "Hind Towards Change" to create awareness and promote sanitation, education, fundamental rights, government schemes etc.
* Received awards in sports such as cricket, swimming and table tennis. Proficient in sports such as badminton and squash.
* Part of the school orchestra and play instruments such as tabla, piano and guitar.