

# Animesh Nema

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## Objective

Summer Internship in Robotics focused in Intelligent Robotics and Industrial Automation.

## Education

### Worcester Polytechnic Institute (WPI)

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

Worcester, MA

May 2019

### Sri Ramaswamy Memorial University (SRM)

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

Tamil Nadu, India

May 2017

**Related Courses:** Deep Learning, Computer Vision\*, Robot Dynamics, Robot Controls, Swarm Intelligence, Foundations of Robotics, Smart Materials .

\*To be completed by August 2018

## Skills

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

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

## Projects

### Predicting Grade of Road for Autonomous Vehicles Using Supervised Deep Learning.

WPI

Deep Learning

September–December 2017

- Developed a deep learning neural network and trained it on a labeled dataset (Supervised learning) of Inertial Measurement Unit (IMU) sensor and Global Positioning System (GPS) readings.
- Built a Convolutional Neural Network using Tensorflow environment and Keras and programmed CNN architecture on Python to predict the grade of the road ahead and observed it in real-time.

### 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 Robotic arm to carry objects of unknown masses while maintaining its desired path. Implemented the project on MATLAB.

### 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.

### Face detection using Deep learning

WPI

Deep learning

October 2017

- Implemented a supervised deep learning algorithm to learn features of different faces and detect them and tested the algorithm using live feed from the web cam.
- Requirements: Python, OpenCV, Tensorflow, Keras

### 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.

### 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 by filling up the concave regions of the object with the robots and then implementing occlusion based transport strategy on the object.
- Requirements: ARGOS, Buzz.

## Extra-curricular Activities

- Co-founded an NGO called "Hind Towards Change" to create awareness and promote sanitation, education, fundamental rights, government schemes etc.
- Interests: Cricket, Squash, Badminton, Reading and writing, Guitar, Piano and Tabla (Percussion Instrument).