

Animesh Nema

159 Highland Street, Apt 3 Worcester, MA, 01609

anema@wpi.edu

774-502-4739

<https://animeshnema.github.io/index.html>

<https://github.com/AnimeshNema>

www.linkedin.com/in/animesh-nema/

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, TensorFlow, 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.

Warfighter Analytics for Smartphone Healthcare.

WPI

DARPA Research (Machine Learning)

November 2018–Present

- Extracting and Analysing data from smartphone sensors to carry out real-time assessment of a warfighter.
- Develop machine learning/deep learning models to predict certain activities such as walking, sleeping etc and detect anomalies that could signal traumatic brain injuries, to help the warfighter recover.

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.
- Actuated all the fingers by a single servo motor, modelled using SolidWorks and programmed using Arduino.

Solving Relocalization for SLAM using Vision.

WPI

Directed Research

September 2018–Present

- Carry out Relocalization in a previously mapped environment using Visual Slam based approach.
- Implement feature descriptor algorithms and compare the results with the database to identify a location in the environment.

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.