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, 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.

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 such as BRIEF, ORB, SIFT etc and compare the results with the database to identify a location in the environment.

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.