Parthsarthi Rawat

21 Fruit Street, Apt #4G, Worcester, MA 01609
prawat@wpi.edu, (508) 615-3508, Website

Education:

Worcester Polytechnic Institute (WPI), Worcester, MA
Master of Science in Robotics Engineering**,** GPA 4.0/4.0 May 2023

Shiv Nadar University (SNU), Greater Noida, India
Bachelor of Technology in Mechanical Engineering**,** GPA 3.2/4.0 June 2020

Skills:

Software: ROS, Gazebo, Simulink, ANSYS FLUENT, SolidWorks
Languages: C, C++, Java, Python, MATLAB

Projects:

Instance Segmentation, WPI August-December 2021

- Implemented Mask RCNN using TensorFlow to detect and delineate different instances of multiple object classes in an image and real time video in a four-person team.
- Executed transfer learning to achieve greater mAP on a custom object.

Cooperative Path Planning for Automated Warehouse Management, WPI August-December 2021

- Collaborated in two-person team to redesign, implement and benchmark various cooperative path planning algorithms like Cooperative A* (CA*), Windowed Hierarchical Cooperative A*(WHCA*) and Local Repair A* (LRA*).
- Build a 2D and 3D visualizer for the planning algorithms using C#.

Autonomous Amphibian Hexapod, SNU August-December 2019

- Designed, simulated, and fabricated a 6-legged bio-inspired amphibious robot to traverse multiple terrains and aid in rescue operations.
- Implemented YOLO on NVidia Jetson Nano as the vision model and built a novel path planning algorithm which removes the computation cost for localization and mapping for unstructured terrains.

Related Experience:

Research Intern, National University of Singapore(NUS), Singapore February-August 2020

- Designed, fabricated and published a novel and effective fiber reinforced gradient actuator with non-parallel surfaces useful for rehabilitation and industrial gripper.
- Refined and enhanced YOLOv3 as the computer vision model for soft actuated industrial grippers to achieve better real time performance.

Publications:

- "GradNet: A Viscosity Gradient Approach to Achieve Dexterity in Soft Pneumatic Actuators"; *Parthsarthi Rawat, Tanay Misra, Khin Phone May, Marcelo H ANG Jr, Raye Chen-Hua Yeow, Santanu Mitra; 16th International Conference on Intelligent Autonomous Systems. [In press, yet to be available online]*
- "Designing of an Amphibian Hexapod with Computer Vision for Rescue Operation"; *Parthsarthi Rawat, Tanay Misra, Santanu Mitra, Aakash Sinha*; *2020 6th International Conference on Control, Automation and Robotics (ICCAR); DOI:* 10.1109/ICCAR49639.2020.9108039

Honors/Awards:

- Best paper presentation in Computer Vision category at IEEE 2020 6th International Conference on Control, Automation and Robotics (ICCAR).
- American Society of Mechanical Engineers(ASME) Student Design Competition(SDC):
  - World Finals Rank-10 November 2018
  - Asia Pacific Rank-1 March 2018

Activities:

- **American Society of Mechanical Engineers-SNU Chapter,** SNU August 2016–June 2020
- **Society of Automotive Engineers-SNU Chapter**, Braking Sub-Team Captain, SNU March 2018–March 2019