NAVODIT CHANDRA

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EDUCATION

Carnegie Mellon University (CMU) **Pittsburgh, PA**

Master of Science in Mechanical Engineering - Advanced Study GPA: 4.0/4.0 *Dec 2022*

- Relevant Coursework: Machine Learning, Deep Learning, Computer Vision, Trustworthy AI Autonomy

Indian Institute of Technology Kanpur (IIT Kanpur) **Kanpur, India**

Bachelor of Technology in Mechanical Engineering (Graduated with Distinction) GPA: 9.1/10.0 *May 2021*

SKILLS

Programming Languages	Python, C, C++, MATLAB
Libraries	PyTorch, OpenCV, OpenAI Gym, NumPy, Pandas, Matplotlib, Scikit-learn
Software	Linux (Ubuntu), Webots, CARLA, MAPLE, Arduino, Git, LaTeX, AutoCAD

PROJECTS

Carnegie Mellon University **Pittsburgh, PA**

End to End Learning for Self-Driving Cars *Feb 2022 - Apr 2022*

- *Created an end-to-end learning pipeline to make a self-driving car predict the steering angle from the images captured by it*
- *Collected data from the Udacity self-driving car simulator by driving the car manually.*
- *Implemented CNN and CNN-LSTM neural network topologies to maneuver the car reasonably well on the training and testing tracks*

Modeling and Study of Adversarial Attacks in Car Autopilot *Mar 2022 - Apr 2022*

- *Used Digital Twin technology on the Metadrive simulator to make the autopilot system of a self-driving car misidentify the moon in the evening sky as a yellow traffic light*
- *Deployed the Projected Gradient Descent (PGD) attack algorithm to perturb the images captured by the RGB camera mounted on the car*
- *Implemented randomized padding and adversarial training as effective defensive techniques to avert such safety critical scenarios*

Seven Segment Digit Recognition using Computer Vision *Mar 2022 - Apr 2022*

- *Developed an algorithm to take readings from electronic devices making use of a seven-segment display for depicting decimal numerals*
- *Collected a set of images containing successive readings from a weighing scale using a camera fixed in position*
- *Utilized image processing operations and computer vision techniques for speeding up the process of taking readings by a factor of 10.4 and improved the accuracy by 7.8% in comparison to average computer typists*

EXPERIENCE

Mechanical and AI Lab **Pittsburgh, PA**

Graduate Student Researcher *May 2022 - Present*

- *Working on incorporating attention mechanisms on the PointNet neural network architecture to improve the accuracy of object detection*

Energy Conversion and Storage Lab **Kanpur, India**

Summer Undergraduate Research Grant for Excellence (SURGE) *May 2019 - July 2019*

- *Carried out a parametric study to study the effect of gas velocity, operating current, surface wettability and capillary number on the operation of a PEM fuel cell*
- *Analyzed the water removal rate and energy lost in the flow channels by means of simulations*