# EC19603 - Problem Solving using AI and ML Techniques

## (Mini Project)

## AUTONOMOUS CAR DRIVING SIMULATION USING CARLA

## ABSTRACT

This project makes use of Python's capabilities alongside TensorFlow, Keras, and Matplotlib to develop a self-driving model. Beginning with a Common H5 Model crafted through Convolutional Neural Network (CNN) algorithms, then the proposed approach is advanced by integrating Reinforcement Learning (RL) techniques from Stable-Baselines3. However, this method takes a unique turn, instead of starting from scratch, our RL model learns from the steering angles derived from the H5 Model, which has been first trained. This innovative integration empowers the car to refine its decision-making abilities, adapting and improving its navigation within the Carla simulation environment. With libraries like Gym and CV2, we equip our virtual car with vision and perception, enabling it to interpret and respond to its surroundings effectively. Our project aims to develop a self-driving car capable of handling diverse real-world scenarios, from navigating busy intersections to maintaining in a lane. By blending cutting-edge algorithms with Python's versatility, the project aims to create a model that mirrors human driver's adaptability and learning capabilities, contributing to the evolution of transportation systems and envisioning a safer and more efficient future on the roads.

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