

AUTONOMOUS CAR STARTING CODE PLANNING

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ABSTRACT

This document presents our team's procedure to create the baseline model code for an autonomous self-driving car. ...

1 SETTING UP THE ENIRONMENT

1.1 INSTALLING CARLA

1.2 INSTALLING ANACONDA

2 DATA COLLECTION

2.1 CREATING THE DATA COLLECTION SCRIPT

In CARLA, there are already cars which have an autonomous functionality. We can create data a RHB Camera Sensor attached to this car, while it drives around a designated map.

Procedure:

1. Spawn in a vehicle
2. Attach an RGB Camera Sensor (front-facing) to the dash of the car.
3. Collect image data (20 fps) and steering values for the car.

2.2 COLLECTING DATA IN STABLE CONDITIONS

Initially, data would be collected without traffic in the roads (i.e no pedestrians or cars on the road). The car would have a constant speed and the camera will always be mounted in the same position and angle at the front of the car. The FPS will be set to a constant 20 FPS. We will use the CARLA's autopilot as the ground truth for our model.

2.3 CLEANING THE DATA AND SAVING DATASET

3 CREATING BASELINE MODEL

3.1 BUILDING THE MODEL

3.2 EVALUATING THE MODEL

4 TRAINING NEURAL NETOWRK

*Quantitative Results: Training Loss (MSE) and Validation Loss

4.1 MODEL TRAINING SCRIPT

4.2 LOGGING

4.3 OUTPUTTING RESULTS

5 EVALUATING WITH INFERENCE

*Qualitative Results: Using model for actual driving in CARLA

5.1 RUNNING MODEL IN CARLA USING LIVE CAMERA FEED