Autonomous Intelligence Systems
Labortory

Exercise Nr. 3

CarRacing

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Introduction:

The goal of this exercise is to experiment with imitation learning. In this exercise, it is implemented a behavioral agent and evaluated its performance on the CarRacing control task from OpenAI Gym benchmark suite. By using the Convolution Neural Network from the Tensorflow package the following layers architecture is implemented.

Three convolution layers with 32 x 2 filters in the first two layers and in the third layer 16 filters are used. Kernel size 5, 5, 5 and strides 2, 2 and 1. One dropout layer and one fully connected layer.

Learning Rates :

By using (learning rates = 0.001) in the Adam gradient descent, the final training cost and valid loss as follow.

Results :
Training Cost & Valid Cost:

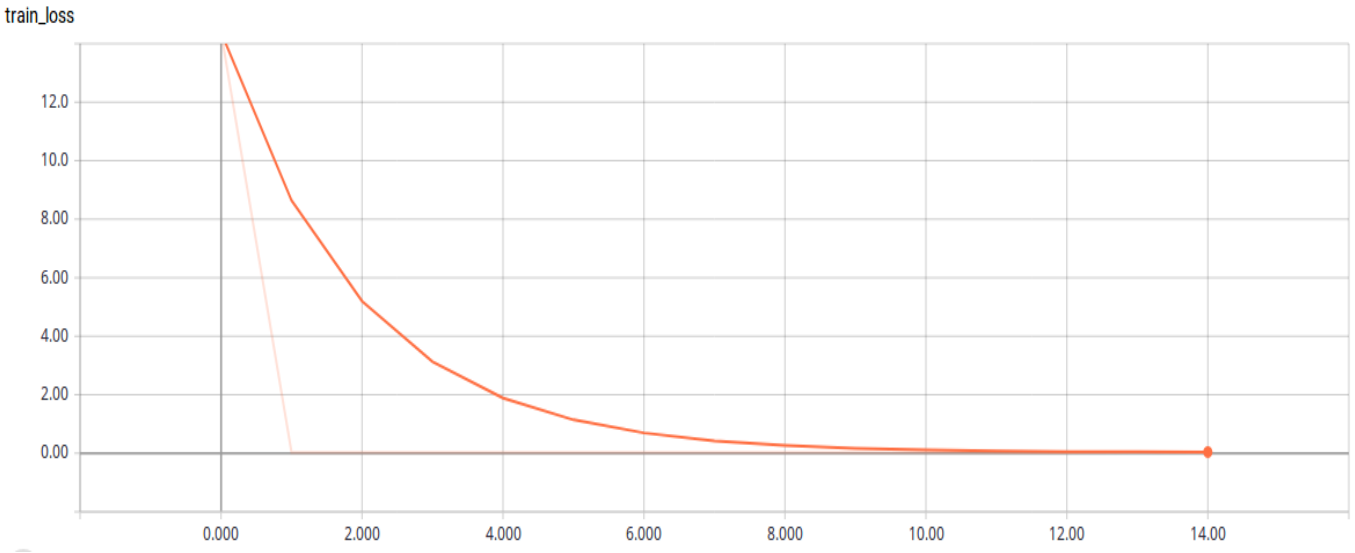
Learning Rate	0.001
Training loss	0.03
Valid loss	0.02

In this following page plots are available from tensorboard.

Difficulties :

I had troubling making the car follow the track while using test_agent.py.

Training loss :



Valid Cost :