

# README

## Semantic Segmentation Project

In this project I will be labeling the pixels of a road in images using a Fully Convolutional Network (FCN).

Setup was done and executed on Udacity AML udacity-carnd-advanced-deep-learning. tqdm was missing and it was installed as follows:

```
ubuntu@ip-172-31-43-242:~/CarND-Semantic-Segmentation$ pip install tqdm
Collecting tqdm
```

```
Downloading tqdm-4.15.0-py2.py3-none-any.whl (46kB)
```

```
100% |████████████████████████████████████████| 51kB 3.3MB/s
```

```
Installing collected packages: tqdm
```

```
Successfully installed tqdm-4.15.0
```

Below are the observations in blue merged with the rubrics.

### PROJECT SPECIFICATION

Semantic Segmentation

Build the Neural Network

### CRITERIA

Does the project load the pretrained vgg model?

Yes.

Downloading pre-trained vgg model...

997MB [00:14, 70.1MB/s]

Extracting model...

The function load\_vgg is implemented correctly.

Yes

Does the project learn the correct features from the images?

Yes

The function layers is implemented correctly.

Yes

Does the project optimize the neural network?

Yes

The function optimize is implemented correctly.

Yes

Does the project train the neural network?

Yes

The function `train_nn` is implemented correctly. The loss of the network should be printed while the network is training.

Yes. Output from last Epoch

Epoch 30 ...

Batch: 0001 | Loss: 0.025

Batch: 0002 | Loss: 0.029

Batch: 0003 | Loss: 0.027

Batch: 0004 | Loss: 0.024

Batch: 0005 | Loss: 0.024

## Neural Network Training

CRITERIA

Does the project train the model correctly?

Yes

On average, the model decreases loss over time.

Yes

Does the project use reasonable hyperparameters?

Yes

The number of epoch and batch size are set to a reasonable number.

Yes

Does the project correctly label the road?

Yes

The project labels most pixels of roads close to the best solution. The model doesn't have to predict correctly all the images, just most of them.

Yes sample output below from run 1505062037.4789517

A solution that is close to best would label at least 80% of the road and label no more than 20% of non-road pixels as road.

