UDACITY

Traffic Sign Classification
A part of the Self Driving Car Engineer Nanodegree Program

PROJECT REVIEW

CODE REVIEW

NOTES

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Meets Specifications

Excellent work, you nailed it!
👏🏼👏🏼👏🏼

I can see you put a lot of effort in your project, advancing a lot, you should be really proud!

You have shown a firm grasp of the concepts presented here and are good to go.

Keep going and good luck!
Paul

Dataset Exploration

Student performs basic data summary.

Good job completing the basic data summary.

Student performs an exploratory visualization on the dataset.

Excellent idea plotting one example of each class and the distribution of classes.

Design and Test a Model Architecture

Students provides sufficient details of the preprocessing techniques used. Additionally, the student discusses why the techniques were chosen.

Excellent work augmenting the dataset.

Suggestion

A good practice is to normalize the image data, aiming for *zero mean* and *equal variance*, like normalizing the pixel values to the range [-0.5, 0.5].

This means your input will turn it in a well conditioned problem, making it easier for the optimizer to go and find a good solution. You can find more information on the course

Student provides sufficient details of the characteristics and qualities of the architecture, such as the type of model used, the number of layers, the size of each layer. Visualizations emphasizing particular qualities of the architecture are encouraged.

Nice description of the final model's architecture.

Suggestion

Have your tried visualizing your model's architecture using TensorBoard?

Student describes how the model was trained and evaluated. If the student generated additional data they discuss their process and reasoning. Additionally, the student discusses the difference between the new dataset with additional data, and the original dataset.

Nice description of the steps taken to train and validate your model.

Awesome work augmenting the training dataset, not only it's useful to increase the dataset size, but can also improve your model's robustness by balancing the classes and exposing the model to other image qualities 👍

Student thoroughly discusses the approach taken for deriving and designing a model architecture fit for solving the problem given.

Nice description of the design process of the model architecture and hyperparameters.

Starting with *LeNet* is a good way to get started fast and progressively improve your model by fine tuning hyperparameters and adding layers.

Suggestion

Have you thought about adding an inception module? If so, check out this example.

Test a Model on New Images

Student chooses five candidate images of traffic signs taken and visualizes them in the report. Discussion is made as to any particular qualities of the images or traffic signs in the images that may be of interest, such as whether they would be difficult for the model to classify.

Good job on your evaluation of the new images.

Suggestion

Testing traffic signs that are present in the training dataset can help you better understand your model's performance on the real world.

Student documents the performance of the model when tested on the captured images and compares it to the results of testing on the dataset.

Good job reporting and evaluating the performance of your model on the newly acquired traffic sign images.

The softmax probabilities of the predictions on the captured images are visualized. The student discusses how certain or uncertain the model is of its predictions.

Nice discussion on the certainty of your model for the newly acquired images using plots of the softmax probabilities.

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Student FAQ