Report CarND-Traffic-Sign-Classifier

Preamble:

I own only a cheap PC. Therefore,I only have an inexpensive PC. Therefore, we will construct the project as follows.

· Training results (sign model) and images to be used (grayed scaled) are recorded in the storage once

· Load them from storage when using them

Procedure for running the project

Step 0: Load The Data + Step 1: Dataset Summary & Exploration

Resolve instructions using functions (1) to (3)

Function (1) Load three data of training, validation, testing

Function (2) Load signnames data

Function (3) Prepare system parameters and basic summary of the Data

Step 2: Design and Test a Model Architecture

Pre-process the Data Set (normalization, grayscale, etc.)

Resolve instructions using functions (4) to (10)

Function (4) Define standard processing (grayscale image)

Function (5) Define conversion function from RGB to grayscale

Function (6) Make a list of grayscale images (1K data at a time)

Function (7) Concatenate the list to create an array(converted-image) & record the array

Function (8) Load arrays and restore transformed images

Function (9) Replace training, validation, testing data with returned grayscale image

Furthermore, initialize data used in TF

Function (10) Shuffle training data for startup

※ In this step 2, in order to strengthen training, "keeped edge training image " and "blurred edge training image" are combined with "original training image" and processed

Model Architecture

Resolve instructions using functions (11) to (17)

Function (11) Define the leNet with Dropout

Function (12) Set placeholder & one_hot

Function (13) Set the TF function (group 1)

for logits, softmax_cross_entropy , AdamOptimizer etc

Function (14) Set the TF function (group 2)

for Task Of Softmax Probabilities

Function (15) Set the TF function (group 3)

for correct_predict14ion ,evaluation & customized evaluation method etc

Function (16) Execute TF function & Record the Result (= Traffic-Sign Model)

Function (17) Load the last used learning rate

Function (18) Load my Traffic-Sign Model&Execute evaluation Test

※ In this step 3, I attempted to adjust the dropout and the learning rate

Step 3: Test a Model on New Images

Load and Output the Images

Resolve instructions using functions (19) to (17)

Function (19) Load my image to make sign data-set

Function (20) Output predictions

Function (21) Output the result of Analyze Performance

Output Top 5 Softmax Probabilities For Each Image Found on the Web

Function (22) Output the result of Softmax Probabilities