NCTU Pattern Recognition, Homework 5

Deadline: June 30, 23:59

Coding (100%):

In this coding assignment, you need to implement the deep neural network by any deep learning framework, e.g. Pytorch, TensorFlow, or Keras, then train the DNN model by the Cifar-10 dataset and try to beat the baseline performance.

Download dataset HERE.

Please note that you should only train and evaluate your model on the provided dataset. **DO NOT** download the data from other resources**.**

If you are a newbie in a deep learning framework, we recommend you learn **Keras** or **Pytorch**.

- Pytorch tutorial
- Keras tutorial
- TensorFlow tutorial

1. **(100%) Show your accuracy of your model on the provided test-data by screenshot the results of your code and paste it on your report**

   Evaluation:

Accuracy	Your scores
acc >= 0.95	100 points
0.9 <= acc < 0.95	95 points
0.85 <= acc < 0.90	90 points
0.80 <= acc < 0.85	85 points
0.75 <= acc < 0.80	80 points
0.7 <= acc < 0.75	70 points
0.6 < acc <= 0.7	60 points
acc <0.6	No points

   Note**:** Keyword to boost your model performance

   1. Data augmentation
   2. Hyperparameter searching for model structure (number of filers, number of convolution/dense layer) and optimizer (learning rate)
   3. Regularization

   Note: If your result is bad, check this tutorial first to debug your model

DO NOT MODIFY CODE BELOW!

Please screen shot your results and post it on your report

In [ ]:
```
y_pred = your_model.predict(x_test)
```

In [10]:
```
assert y_pred.shape == (10000,)
```

In [11]:
```
y_test = np.load("y_test.npy")
print("Accuracy of my model on test set: ", accuracy_score(y_test, y_pred))
```

```
Accuracy of my model on test set:  0.8705
```