ECEN 689: Machine Learning: Fall 2019
HW 5: Convolutional Neural Network

Due Date: 5th November 2019

In this homework, we will implement an image classifier using Convolutional Neural Networks. We will use the materials from Stanford University CS 231n Course [1].
Link to the assignment page is here. Details are given below.

Question 1

- You will implement a CNN to classify the CIFAR-10 Dataset.
- We will **only grade Q5** in this page. But you are encouraged to try Q1-Q4 for a better understanding of CNNs.
- You can use either TensorFlow or PyTorch for Q5.
- You **should** solve part 5 of Q5 by implementing various techniques taught in class.

Question 2
In this question we will train and test classifiers from homework 4 with *permuted* data.

- Use the IPython notebooks attached (svm and two layer NN) and make necessary changes from your homework 4 solutions.
- The new notebooks contain an additional code block which permutes your input.
- Detail your observations in the block provided.

Question 3
Create a copy of Question 1, and retrain your CNN with permuted data. You can reuse the code block from Question 2. Detail your observations in end.

How to submit

1. Complete all the coding, filling in all the in-line questions, and the results.
2. Download the IPython Notebook as a HTML file for all questions.
3. Put the files in Step 2 in a folder titled **LastName_FirstName.zip**. You should have 4 HTML files in total.
4. Mail the folder created in step 3 to me with subject of the mail as "ECEN 689 HW5".

[1] Instructor gratefully acknowledges their permission to use these materials.