Homework Assignment 2

Ai-Master Deep Learning Foundation Program

Instruction: Please read through chapter 10 of the deep learning ai-book (Project Two: Image Recognition) and the code for the second project (https://github.com/Ai-Master/deep-learning-foundation-program). For this assignment, please finish the following tasks and upload the assignment to your personal Github repository, and submit the GitHub link to the instructor.

1. Run Codes in the Jupyter Notebook

Just like what you have done for project one, first you should download the jupyter notebook for this project from github, unzip it and use terminal to open it.

We expect you to read through the whole Jupyter notebook, run codes and understand codes.

2. Write Your Own Code

Please create a new Jupyter notebook and write the script that uses Convolutional Neural Network to train and test Cifar 100 dataset. You can use the same code we provided or use other ways to preprocess data, as long as the code does not produce errors or have a terribly low accuracy. For the model, **you are required to make following change in your code**:

1. For the first layer, change number of filters, kernel size, padding and activation function

2. Add one or more conv layer/fc layer to the model

3. Add dropout

4. **(optional) Change the optimizer**
5. **(optional) use early stop**

Remember that the goal is to get higher validation and testing accuracy.
After you finish coding, please upload the notebook to your GitHub repo.

3. (Optional) Write a CNN

We challenge you to build a complex convolutional neural network that fully utilizes the functional API we have discussed in the book. For example, you can write a CNN that contains the inception module (The code is also in the tutorial video and the powerpoint). You can stack multiple inception modules together for a large neural network.