Homework 2_1

Due: 2021-10-13 (Wed.) 8pm

Introduction

In this assignment you will master basic neural network adjustment skills and try to improve deep neural networks: Hyperparameter tuning, Regularization and Optimization.

- this time you will be given three subtasks in folder "Improving Deep Neural Networks: Initialization, Gradient Checking, and Optimization".

• Setup

- **Start IPython**

  you should start the IPython notebook from the homework_2_1 directory, with the jupyter notebook command.

• Experiments

There are ### START CODE HERE/### END CODE HERE tags denoting the start and end of code sections you should fill out. Take care to not delete or modify these tags, or your assignment may not be properly graded.

- **Q1: Initialization (30 points)**
  The IPython Notebook Initialization.ipynb will walk you through implementing the weight Initialization.
- **Q2: Gradient Checking (30 points)**
  The IPython Notebook Gradient Checking.ipynb will walk you through implementing the Gradient Checking.
- **Q3: Optimization (40 points)**
  The IPython Notebook Optimization methods.ipynb will walk you through implementing the optimization algorithms.

- **See the code file for details.**

• Submission

You need to accomplish the following files:

1) **Improve deep neural networks**

   ➢ Initialization.ipynb
   ➢ Gradient Checking.ipynb
   ➢ Optimization methods.ipynb

2) **Report**
   ➢ Please convert your experiment report to PDF format
   ➢ You just need to upload all your code and report and do not upload datasets.