Homework 3

Due: 2021-11-03 (Wed.) 8pm

Introduction

In this assignment you will understand the architecture of **Convolutional Neural Networks** and get practice with training these models on data.

- you will be given two subtasks: Building a Convolutional Neural Network Model and Application, using Keras to build a residual network **(Optional)**.

• Setup

- **Start IPython**

  you should start the IPython notebook from the `homework_3` directory, with the jupyter notebook command.

- **Pre-trained model**

  Download ResNet50.h5 file.

  The file already exists under the path `\homework_3\Convolutional Neural Networks\week2\ResNets\`

• 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: Convolutional model -Step by Step (50 points)**

  The IPython Notebook Convolutional model -Step by Step.ipynb will walk you through implementing the CNN step by step.

- **Q2: Convolutional model - Application (50 points)**

  The IPython Notebook Convolutional model - Application.ipynb will walk you through implementing the CNN application.

- **Q3: Residual Networks (50 points) (Optional)**

  The IPython Notebook Residual Networks.ipynb will walk you through implementing the Residual Networks.

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

• Submission

You need to accomplish the following files:

1) **Convolutional Neural Networks**

- Convolutional model -Step by Step.ipynb
- Convolutional model - Application.ipynb
- Residual Networks.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.