Neural Networks (152118003)

2019 – 2020 Spring Term

Term Project Question Set #2 (Each question is equally weighted)

**1)** In Problem set #1, you had expanded a python code example to implement a simple Neural Network from scratch. This time, implement the same one utilizing Keras. You are required to

- build a simple Neural Network model in the same size

- utilize the same type of train and test data

- present training and testing error

2) In the Jupyter notebook provided to you, implement types of NNs according to the instructions given as a comment with the Jupyter notebook. In general you are required build t NNs with network structures given below for each

1st

A **Sequential** NN with following configs

Output

Input

Fully connected layer with

25 hidden neurons

and ReLU

Fully connected layer with

25 hidden neurons

and ReLU

Softmax

**2nd**

**A CNN with a Sequential layer**

Pooling (Max)

2x2

2D Conv

64@5x5

with ReLU

Strides 1

Padding same

Input

2D Conv

32@5x5

with ReLU

Strides 1

Padding same

Pooling (Max)

2x2

Output 10 neurons

Dense 100 w ReLU

Flatten

2D Conv

128@5x5

with ReLU

Strides 1

Padding same

Pooling (Max)

2x2

Softmax

**Submission of the results:**

Each submission will include:

- A Google Colab’s Gdrive folder. Submit separate Jupyter notebooks for Q1 and Q2. Your source code should be clearly commented (both inline comments and Jupyter cell text comments) and readable. All code can also run with a one click ‘Run all’ button once opened in Colab. Any code that generates run time error after “Run All” command will receive a zero grade. Any code that is also not accessible through the share URL during grading will also receive a zero grade

- a PDF report file where the link to your Google Colab folder is included and also your results and code snippets explained with clear screen captures. The PDF file will be submitted via DYS.

Good luck