20DS708– Deep Learning for Visual Recognition. (M.Tech-DS(2020-22))

2020-2021(Even) Assignment 1: 2-D Convolutional Neural Networks

Submission Date: 11.04.2021. (@ 10:00 P.M)
Max.Marks: 50.
Submit this assignment as an ipython notebook.

1. Build your own "2-D Convolution" function file to perform the convolution operation, given the input matrix of size m x m and one filter of size f x f, such that the ouput convolution length is given by m-f+1. **(10 marks)**

2. Build your own "2-D Convolution" function file to perform the convolution operation given the input matrix of size m x m and one filter of size f x f,, such that the ouput convolution length is same as that of the length of the input sequence. **(10 marks)**

3. Use any one of your built "Conv2" function file to perform the convolution operation given the input matrix and 'N1' number of filters. **(10 marks)**

4. Use any one of your built "Conv2" function file to perform the convolution operation given the input matrix and 'N1' number of filters, followed by the convolution operation with 'N2' number of filters, where N2>N1. **(10 marks)**

5. Compute the number of learnable parameters for Q.No.4. Validate your computation with the number of learnable parameters given by Keras-Tensorflow framework. **(10 marks)**

This evaluation aims at "Understanding the fundamentals of Deep Learning" (CO1)