CS/CE 457/464 - Homework Assignment 11: Deep Learning

Due Date: Monday, November 25 at 11:59 pm

Purpose:
Demonstrate understating of basic Deep Learning techniques for image data

Points: 100

Deliverables: Submit ipynb code file along with your answer

- Perform Image Processing on the following questions**.** Make sure to include interpretation of each result including text/visualizations/tables to support your answer

    1. Select any image of your choice and apply 3 different filters on it. Display the output for each filter.
        a. Describe each filter, its purpose and output after applying filter. Explain if the filter output is correctly showing its purpose.
    2. Pick a dataset containing images of two different objects (classes) and train a deep learning classifier on those images.
        a. Report the best accuracy on training and validation/testing data during epochs iterations.
        b. Get 6 new images (3 for each object/class that should not be present in your train and test set) and test the performance of your classifier. Explain if the classifier can accurately classify those new images.
        Hint: You can think of two different objects such as images of two alphabets, two animals, two monuments, two currency bills etc. Also start with 50 train images and 15 test images for each object.