

## CSCI 495/595 Research Assignment

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*Check due date in D2L.*

*Total points: 10.*

For this assignment, you will need to do the following:

- 1. Identify a domain for this research assignment.**
  - a. Classification of handwritten letters
- 2. Identify the research focus, i.e., object detection, segmentation, or classification.**
  - a. Classification – I am going with this selection because of how applicable it is to optical image recognition and work with OpenCV, as I want to eventually integrate this with a physical microcontroller robot project.
- 3. Either construct a training data set from scratch or use the existing data set from sources like GitHub, Kaggle, or online repository.**
  - a. I will be using the EMNIST dataset for training, and my own handwritten letters for testing
- 4. Research a technique to train a convolutional neural network on the data set you identified in step 3.**
- 5. Test your trained model with a new unseen data and report the output of your model.**
  - a. This was done with handwritten letters that I created

### **Report:**

You will need to turn this assignment before the due date. Your assignment should include the following:

- a. Your response to step 1 above (i.e., the domain you identified for this assignment)
- b. Discuss your research focus and reasoning for its selection.
- c. Describe your data set, i.e., provide details about the number of data points, size, dimensions, etc., applicable to your data set.

- d. For step 4, It is recommended that you include your code that implements the training of a convolutional neural network. You can include the output/snapshot of the run of your model in this file.
- e. Discuss the results that your model produced for any unseen data used to test it.