Nile University
Communication and Information Technology Program
Fall 2017

CIT651 –Introduction to Machine Learning and Statistical Data Analysis

# Assignment #1

**(Due on: November 18, 2017 at mid-night)**

You are required to design a perceptron classifier that can recognize scanned images of the 26 lower-case characters provided in the file "Assignment 1 Dataset.zip". The zip file contains two folders: "Train" and "Test". The "Train" folder contains 7 images for each lower-case character while the "Test" folder contains 2 images for each lower-case character. The images in the "Train" folder should be used to train a classifier for each character using the method given at the bottom of slide 9 in Lecture 2.pdf. After the classifiers are trained, test each classifier using the images given in the "Test" folder. For each perceptron classifier, use $\eta = 0.05$ and an initial weight vector that has 1 as the first component ($w_1$) and the rest are zeros.

Deliverables:

- Your code.
- A plot of the number of images classified correctly for each character. The x-axis should show the character (a, b, …, z) while the y-axis should show the count. Name the plot "Accuracy.jpg".