

CECS 551
Assignment 4
Total: 25 Points

General Instruction

- Submit uncompressed file(s) in the Dropbox folder via BeachBoard (Not email).
-

1. Design a neural network and test regularization methods using **Keras** library.
 - (a) Find `Assignment_4_regularization.html` and `data.mat`.
 - (b) The main objective of the assignment is reproducing the last two figures in `Assignment_4_regularization.html`
 - (c) (10 points) Design your own neural network and implement it.
 - Intentionally, consider a complex network with high epochs to build a over-fitted non-linear decision boundary.
 - `train_X` and `test_X` have two features x_1 and x_2 .
 - `train_y` and `test_y` includes the classes of (x_1, x_2) , 0 or 1.
 - The objective of the network is classifying (x_1, x_2) as 0 or 1.
 - (d) (5 points) Implement a network by adding L_2 regularization to the previous one without modifying the network design.
 - (e) (10 points) Draw decision boundaries based on training data set between two classes. You can refer *this site*.
 - (f) Submit your `Assignment_4_regularization.ipynb` file.