**Summer 2024: CS5720**

**Neural Networks & Deep Learning**

**ICP-3**

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**GitHub Link:**

https://github.com/Shiva-labs/Neural-Networks\_ICP3

1. Use the use case in the class:

* Add more Dense layers to the existing code and check how the accuracy changes.
* Change the data source to Breast Cancer dataset \* available in the source code folder and make required changes. Report accuracy of the model.
* Normalize the data before feeding the data to the model and check how the normalization change your accuracy (code given below).
  + from sklearn.preprocessing import StandardScaler
  + sc = StandardScaler()

Breast Cancer dataset is designated to predict if a patient has Malignant (M) or Benign = B cancer

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2. Use Image Classification on the handwritten digits data set (mnist)

* Plot the loss and accuracy for both training data and validation data using the history object in the source code.
* Plot one of the images in the test data, and then do inferencing to check what is the prediction of the model on that single image.
* We had used 2 hidden layers and Relu activation. Try to change the number of hidden layer and the activation to tanh or sigmoid and see what happens.
* Run the same code without scaling the images and check the performance?

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A graph of a graph of a model loss

Description automatically generated with medium confidence

A screenshot of a computer program

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A number seven with numbers and numbers

Description automatically generated with medium confidence

A screen shot of a computer

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A graph of a number of different colored lines

Description automatically generated with medium confidence

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