2019 2019 Fall EE5183 FinTech - Homework 2

Deep learning Model: Deep Neural Network

**Note: All the result shown in this report came from the jupyter lab IDE and the code has been format to .py in pycharm IDE later.**

1. Using grid search with the values in the picture below:

A screenshot of a cell phone

Description automatically generated

The hyperparameter I got from the grid search:

A close up of a logo

Description automatically generated

DNN training accuracy & training loss:

A close up of a logo

Description automatically generated

A close up of a map

Description automatically generatedA close up of a map

Description automatically generated DNN testing accuracy & testing loss: A close up of a sign

Description automatically generated

1. A screenshot of a cell phone

   Description automatically generatedA screenshot of a cell phone

   Description automatically generated Confusion matrices of DNN:
2. precision, recall, F1-score, average:

A screenshot of a cell phone

Description automatically generated

1. What is difference between decision tree and random forest

* Random forest builds multiple decision trees and merges them together to get a more accurate and stable prediction. It uses to solve the decision tree’s habit of over-fitting to the training set

1. A screenshot of a cell phone

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   Description automatically generated Decision Tree result & Random Forest result:
2. A screenshot of a map

   Description automatically generated Plot ROC, PRC

A screenshot of a cell phone

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