2019 Fall EE5183 FinTech - Homework 4

Deep learning Model: Recurrent Neural Network

1. Candlestick chart & KD line chart & Volume bar chart

A pencil and paper

Description automatically generated

1. I added only 4 features as the problem state. For each features, I generate it by using ‘talib’ which are moving average of 10 days, moving average of 30 days, K line and D line (technical indicators that show the threshold of overbought and oversold of stock)

iv/v/vi/vii/viii.

For all of the three model (RNN, LSTM, GRU), I designed the model with the same parameters which have

* one layer with 64 units
* use tanh as an activation function
* use Adam optimizer and mean squared error as a loss function
* 128 epochs
* 64 batches size

The reason I use the same set of parameters is for the sake of comparing the different between each model.

A screenshot of a social media post

Description automatically generated

A screenshot of a cell phone

Description automatically generatedA screenshot of a cell phone

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Loss value of RNN model is the most fluctuates among the three models and GRU has the least fluctuates. Loss value of each models after training have a slightly difference. The difference is that both RNN and LSTM have high loss value at the starting point than GRU.

A close up of a sign

Description automatically generated

Since RNN doesn’t has gate (the model is less complex) , the training time is faster than LSTM and GRU.