ELM Project Document

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1 ELM method

1.1 Prediction error

Since ELM method could predict price target over a period of length n_1, I use mean absolute error rate with normalized price over this period. Here, I choose $n_1 = 15$ same as the optimal hyper-parameter choice in the paper. In long-run (from $t = 200$ to $t = 3000$), the mean absolute error rate is around 12%. In short-run. the performance of ELM method could be better and the mean absolute error rate could be as low as 8%.

1.2 Trading strategy

I choose trading strategy based on Box Theory. In long-run, this trading strategy always under-performs the buy-and-hold strategy. When the market is stagnant or in down-trend, this strategy could outperform the buy-and-hold strategy. But, this strategy based on ELM method is not stable since there is some randomness in ELM training.

2 LSTM solution

I choose a LSTM Neural Network with four hidden layer. The mean absolute error rate is 1.71 %, which is much better than ELM method.