Penalizing LSTM Output Size for Short-Term Stock Market Technical Analysis

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***Abstract*—**
***Index Terms*—**

I. Introduction

II. Related work

A. LSTMs for market prediction

Mei Sun, Qingtau Li, and Peiguang Lang, published work that was focused on using LSTM architecture for market price prediction [1]. Much like this work, they were aiming to use LSTM architecture for short-term price prediction; however, their focus was heavily on featuring engineering through the use of singular value composition (SVD). Qi Li, Norshaliza Kamaruddin, Siti Sophiayati Yuhaniz and Hamdan Amer Ali Al-Jaifi also have done work in this area [2]. Their work was on the use of LSTMs for price prediction. They aimed to augment it with the use of Symbolic Genetic Programming (SGP). While both of these use combine different methods with LSTM architecture to predict market prices, this work is distinct it its use of penalties for model logits.

B. Penalizing models for market prediction

Huifeng Jiang, Xuemei Hu, and Hong Jia explored different methods of penalizing logistic regressors in order to increase their performance as market indicators [3]. The authors explore penalties that apply to all model coefficients. In this work, the penalties being explored will apply only to model logits.

III. Significance of using size penalty

IV. Significance over time

V. Results

VI. Conclusion

VII. Limitations

References

[1] M. Sun, Q. Li, and P. Lin, "Short-term stock price forecasting based on an SVD-LSTM model," Intelligent Automation & Soft Computing, vol. 28, no. 2, pp. 369–378, Feb. 2021, doi: https://doi.org/10.32604/iasc.2021.014962.

[2] Q. Li, N. Kamaruddin, S. S. Yuhaniz, and H. A. A. Al-Jaifi, "Forecasting stock prices changes using long-short term memory neural network with symbolic genetic programming," Scientific Reports, vol. 14, no. 1, p. 422, Jan. 2024, doi: https://doi.org/10.1038/s41598-023-50783-0.

[3] H. Jiang, X. Hu, and H. Jia, "Penalized logistic regressions with technical indicators predict up and down trends," Soft Computing, Aug. 2022, doi: https://doi.org/10.1007/s00500-022-07404-1.

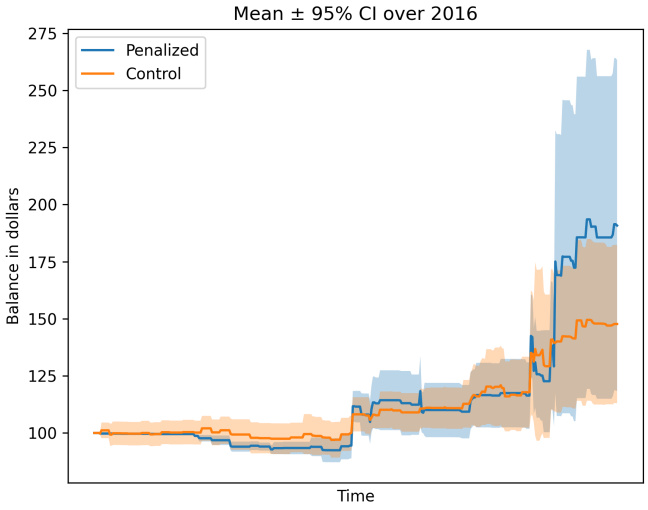

Fig. 1. Title