

Review Paper Enhancing Stock Price Prediction using Optimized LSTM Networks

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Abstract: *Predicting stock market prices is challenging due to the stochastic and nonlinear nature of financial time series data. A multi-step stock price forecasting model based on long short-term memory (LSTM) is presented in this study. Recurrent neural networks of the LSTM type are excellent at identifying long-term dependencies in time series. The models are trained and tested using historical stock price data that is publicly available. Prior to being used as samples and labels for supervised learning, the data is preprocessed to standardize its characteristics. An ideal architecture for an LSTM network is created by methodical experimentation assessing performance in different configurations. Predictive capability is evaluated using quantitative measures such as directional correctness, mean absolute error, and root mean squared error.*

The LSTM model is compared with machine learning models such as support vector regression and statistical techniques such as ARIMA. The outcomes show that, on a variety of assessment measures, the deep learning LSTM technique performs better than the comparison models. The LSTM model can detect latent pricing patterns efficiently and forecast future price changes with a high degree of accuracy. To assess the effects of batching, model hyperparameters, and training window size, further experiments are carried out. The research offers insights into the best model building techniques and demonstrates how LSTM networks may be used to financial forecasting challenges. The suggested method can help traders and investors by offering useful insights and indications based on anticipated stock prices.

Keywords: Stock, Forecasting, LSTM, Historical, Standardize, Predictive

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