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ABSTRACT

In Accurate prediction of stock prices plays an increasingly prominent role in the stock market where returns and risks fluctuate wildly, and both financial institutions and regulatory authorities have paid sufficient attention to it. As a method of asset allocation, stocks have always been favored by investors because of their high returns. The research on stock price prediction has never stopped. In the early days, many economists tried to predict stock prices. Later, with the in-depth research of mathematical theory and the vigorous development of computer technology, people have found that the establishment of mathematical models can be very good, such as time series model, because its model is relatively simple and the forecasting effect is better.

Time series model is applied in a period of time The scope gradually expanded. However, due to the non-linearity of stock data, some machine learning methods, such as support vector machines. Later, with the development of deep learning, some such as LSTM they can not only process non-linear data, but also retain memory for the sequence and retain useful information, which is positive. It is required for stock data forecasting. This article introduces the theoretical knowledge of time series model and LSTM neural network, and select real stocks in the stock market, perform modeling analysis and predict stock prices, and then use the root mean square error to compare the prediction results of several models.

Since the time series model cannot make good use of the non-linear part of the stock data, can't perform long-term memory, and LSTM neural network makes better use of non-linear data and has better use of sequence data. Useful information in the long-term memory, which makes the root mean square error of the prediction result, the LSTM neural network needs smaller than the time series model, indicating that LSTM neural network is a better stock price forecasting method.

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