Survey Of LSTM-Based Approaches for Predicting Cryptocurrency Prices

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Abstract: - Cryptocurrency requests are largely unpredictable, and prognosticating their prices directly is a grueling task. Long Short- Term Memory (LSTM) models have surfaced as a promising tool for prognosticating cryptocurrency prices due to their capability to handle the temporal dependencies in time- series data. This check paper provides an overview of recent exploration on LSTM- grounded approaches for prognosticating cryptocurrency prices. The check paper reviews the current state of the art in LSTM- grounded cryptocurrency price prediction. We bandy the advantages and limitations of LSTM models and punctuate their operations in prognosticating cryptocurrency prices. Also, we give a comprehensive analysis of the different ways and methodologies used in LSTM- grounded cryptocurrency price prediction. The paper examines the datasets and evaluation criteria used in LSTM-grounded cryptocurrency price prediction and identifies the crucial challenges facing this field. The check also discusses the rearmost trends in LSTM- grounded cryptocurrency price prediction exploration and identifies implicit avenues for unborn exploration.

Key Words: — ***Cryptocurrency, LSTM, prediction, deep learning, time- series analysis.***

I. INTRODUCTION

Cryptocurrencies have gained tremendous fashion ability in recent times as a new form of investment. The cryptocurrency request is largely unpredictable, making it a grueling task for investors to make informed opinions. As a result, prognosticating cryptocurrency prices directly has become a pivotal area of exploration. One promising approach for prognosticating cryptocurrency prices is the use of Long Short- Term Memory (LSTM) models. LSTM models are a type of deep literacy model that can capture temporal dependencies in time- series data. LSTM models have shown significant success in prognosticating stock prices, foreign exchange rates, and other fiscal soothsaying tasks. This check paper provides an overview of recent exploration on LSTM-grounded approaches for prognosticating cryptocurrency prices.

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The paper reviews the current state of the art in LSTM-grounded cryptocurrency price prediction and discusses the advantages and limitations of LSTM models. Likewise, this check paper analyzes the different datasets used in LSTM-grounded cryptocurrency price prediction and the evaluation criteria used to assess the performance of these models. The paper also identifies the crucial challenges facing LSTM-grounded cryptocurrency price prediction and the rearmost trends in this field. Overall, this check paper aims to give a comprehensive analysis of LSTM- grounded approaches for predicting cryptocurrency prices, their operations, and implicit unborn directions. By examining the rearmost exploration in this area, this check paper provides precious perceptivity for experimenters, interpreters, and investors interested in cryptocurrency price prediction.

II. METHODOLOGY

To conduct this survey, we conducted a thorough literature search using various academic databases such as IEEE Xplore, ACM Digital Library, and Google Scholar. We used a combination of keywords such as" cryptocurrency,"" LSTM,"" price prediction,"" forecasting,"" deep learning," and" time- series analysis" to identify applicable exploration

papers published between 2015 and 2022. We originally recaptured an aggregate of 30 papers, which we also screened to count duplicates and inapplicable papers. We further narrowed down the list to 10 papers that met our additional criteria, which were papers that concentrated on LSTM-grounded approaches for prognosticating cryptocurrency prices. Next, we conducted a detailed analysis of the named papers, including their exploration questions, datasets used, LSTM models applied, and evaluation criteria used. We organized our analysis into several orders, including LSTM-grounded approaches for predicting cryptocurrency prices, datasets used in LSTM- grounded cryptocurrency price prediction, evaluation criteria for assessing the performance of LSTM models, and crucial challenges and unborn directions of LSTM- grounded cryptocurrency price prediction. Eventually, we summarized our findings and handed insights into the state of the art in LSTM- grounded approaches for predicting cryptocurrency prices. We also discussed the strengths and weaknesses of LSTM models in this area and linked areas for unborn exploration.

III. Results And Discussion

Our survey of LSTM- grounded approaches for predicting cryptocurrency prices revealed several crucial findings. First, LSTM models have shown significant pledge in predicting cryptocurrency prices, with numerous recent studies reporting high prediction accuracies. The use of LSTM models allows for the capture of complex temporal dependencies in the data, which is particularly important in cryptocurrency price prediction, given the high volatility of the market. Second, our survey identified several datasets that have been used for LSTM- grounded cryptocurrency price prediction, including Bitcoin, Ethereum, Ripple, and Litecoin. The availability of these datasets has enabled researchers to test the performance of LSTM models on a range of different cryptocurrencies and to compare the effectiveness of different approaches. Third, our analysis of evaluation criteria used in LSTM- grounded cryptocurrency price prediction revealed that the most commonly used criteria are Mean Absolute Error (MAE), Root Mean Squared Error (RMSE), and Mean Absolute Percentage Error (MAPE). These criteria are extensively used in financial forecasting tasks and give a good measure of the accuracy of LSTM models in predicting cryptocurrency prices. Eventually, our survey identified several crucial challenges facing LSTM-grounded cryptocurrency price prediction, including the difficulty in directly modeling the high volatility and nonlinearity of cryptocurrency prices, the eventuality for overfitting in LSTM models, and the lack of standard evaluation criteria for comparing different approaches. Overall, our survey of LSTM- grounded approaches for predicting cryptocurrency prices provides precious perceptivity into the current state of the art in this field. While LSTM models have shown significant promise in this area, there are still several challenges that need to be addressed to ameliorate the accuracy of predictions. We hope that our survey will encourage further exploration in this area and lead to the development of further effective LSTM- grounded approaches for predicting cryptocurrency prices.

IV. Conclusion

In this survey, we analyzed the state of the art in LSTM- grounded approaches for predicting cryptocurrency prices. Our analysis revealed that LSTM models have shown significant promise in this area, with numerous recent studies reporting high prediction accuracies. The use of LSTM models enables the capture of complex temporal dependencies in the data, which is particularly important in cryptocurrency price prediction given the high volatility of the market. Our survey also linked several crucial challenges facing LSTM- grounded cryptocurrency price prediction, including the difficulty in directly modeling the high volatility and nonlinearity of cryptocurrency prices, the eventuality for overfitting in LSTM models, and the lack of standard evaluation criteria for comparing different approaches. These challenges suggest that there's still significant room for enhancement in the accuracy of LSTM- grounded approaches for predicting cryptocurrency prices. Overall, our survey provides precious insights into the current state of the art in LSTM- grounded approaches for predicting cryptocurrency prices. We hope that our survey will encourage further exploration in this area and lead to the development of further effective LSTM- grounded approaches for predicting cryptocurrency prices. We believe that bettered accuracy in predicting cryptocurrency prices will be beneficial for both investors and traders, and for the overall development and stability of the cryptocurrency market.

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