ABSTRACT

The stock market is a complex and dynamic system influenced by various economic, political, and psychological factors. Accurately predicting stock market trends is a challenging task that has garnered significant interest from researchers and investors. This study explores the application of Artificial Intelligence (AI) techniques for stock market forecasting, leveraging advanced algorithms to analyze historical data and identify patterns. The proposed system integrates machine learning and deep learning models, such as Long Short-Term Memory (LSTM) networks, Convolutional Neural Networks (CNNs), and hybrid approaches, to forecast stock prices and trends. The AI models are trained using historical stock data, technical indicators, and external factors like news sentiment and macroeconomic variables. Data preprocessing techniques, including normalization and feature selection, are employed to improve the models' predictive accuracy. Experimental results demonstrate the effectiveness of AI in capturing market trends and making short-term and long-term predictions. The system achieves significant performance in terms of accuracy and robustness compared to traditional statistical methods. This research highlights the potential of AI-driven models to empower investors and financial institutions with data-driven insights, reducing risks and enhancing decision-making in the stock market.

Keywords: Stock market forecasting, Artificial Intelligence, Machine learning, Deep learning, LSTM, CNN, Financial analysis.