

## ***ABSTRACT***

The stock market has become a popular investment instrument in the digital era. NVIDIA Corporation (NVDA), a company specializing in graphics and computing technology, has experienced significant stock price fluctuations, including a rise of over 100% from 2020 to 2023. This volatility necessitates accurate prediction methods, such as machine learning. Long Short-Term Memory (LSTM), a variant of Recurrent Neural Network (RNN), is designed to address the vanishing gradient problem and retain long-term information. LSTM is chosen for its ability to handle time series data effectively. This study aims to predict NVDA's daily closing stock prices using LSTM with data from January 2, 2020, to December 31, 2024. The model is optimized for hyperparameters such as timestep, batch size, epoch, learning rate, and optimizer. Evaluation is based on Mean Absolute Percentage Error (MAPE) and Mean Squared Error (MSE). The best model uses a 70%:30% training-to-testing ratio, a timestep of 5, batch size 32, 100 epochs, a learning rate of 0.001, and the Nadam optimizer, yielding a MAPE of 2.5438% and an MSE of 10.1110.

**Keywords:** Stock, NVDA, Prediction, Long Short-Term Memory, Hyperparameter