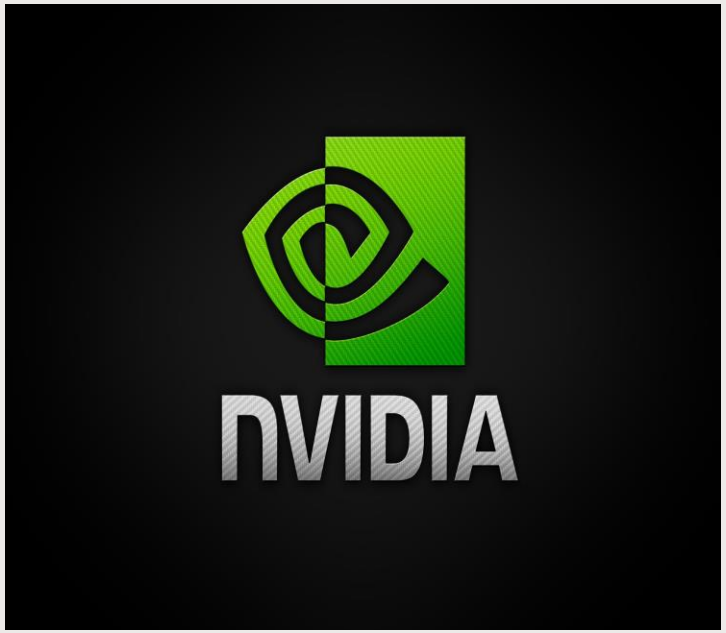
STOCK MARKET ANALYSIS

STOCK MARKET ANALYSIS OF NVIDIA USING LSTM



- We analyse the stock market dynamics of NVIDIA over a period using innovative approaches.
- Using Long Short-Term Memory (LSTM) to gain detailed insights.

Colab Link : NVIDIA Stock Market Analysis Code

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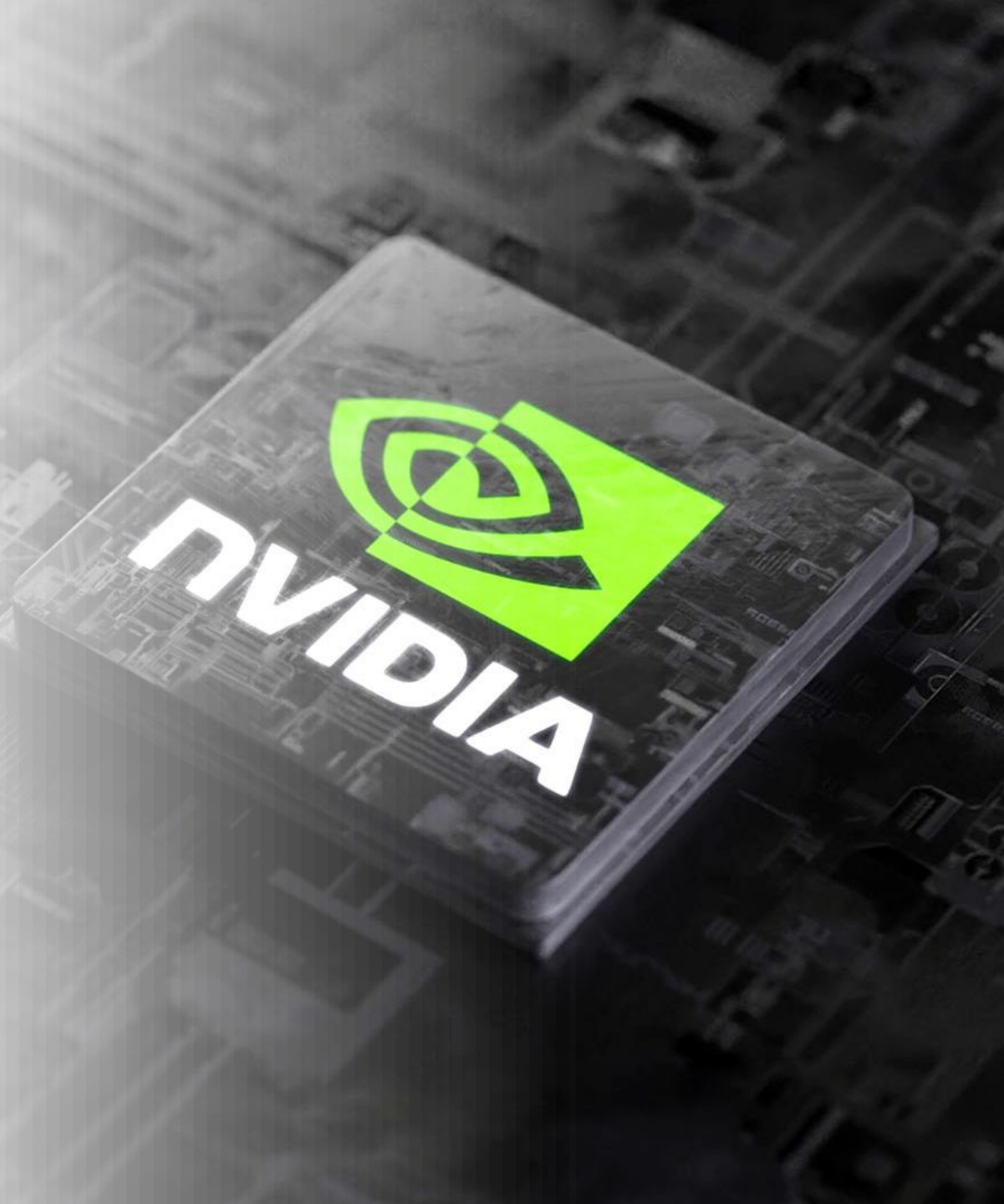
- Renowned for its cutting-edge AI technology and superb graphics chips.
- Founded in 1993.
- Initially known for gaming graphics.
- Diversified into AI, gaming, and more.
- Took significant measures in recent years to increase their footprint in AI and data centers, recognizing the growing relevance of these technologies.
- Solid financial performance and market presence.
- Track record of steady growth and technical leadership.

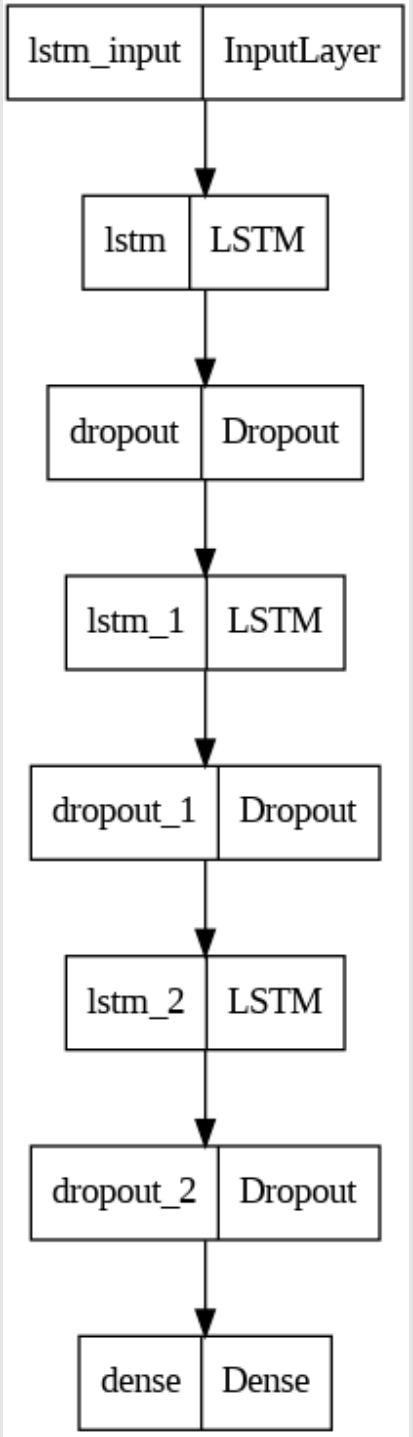


Data on Nvidia stocks gathered by Yahoo Finance. The Python yfinance library was used to analyze the data from 2017 to 2023. Applied essential data processing, including index resetting, resampling to business days, forward filling to handle missing values, and splitting the data into train and test sets.

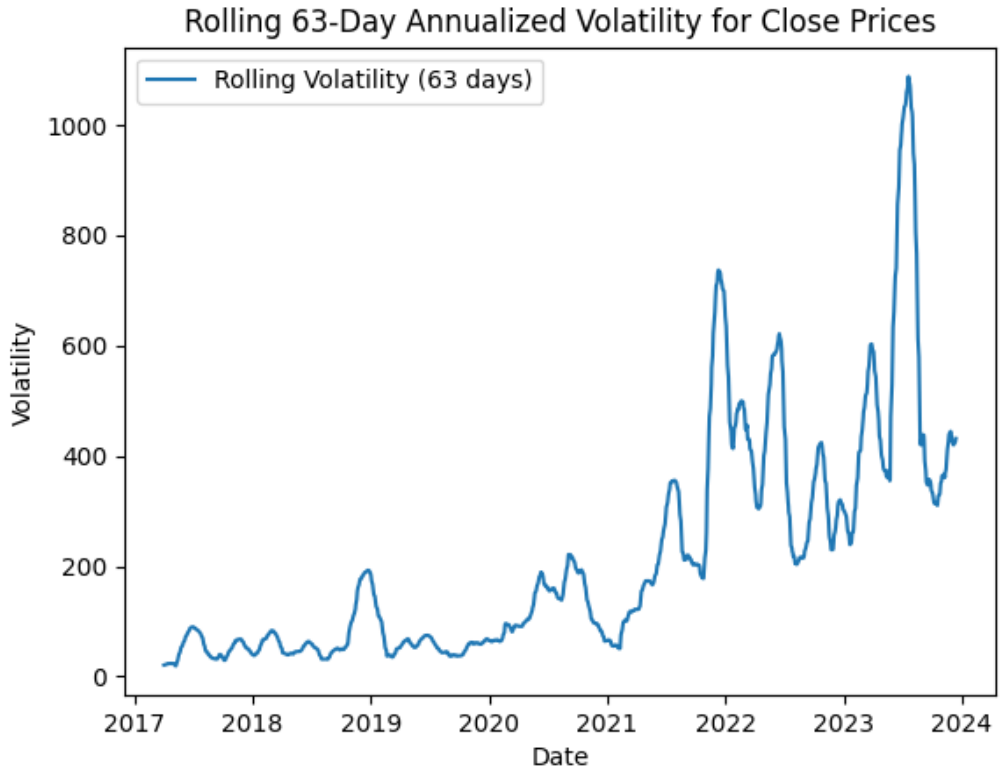
Because of the period's ability to capture current market dynamics and the significance of the technology industry, Nvidia was selected.

LSTM : Long Short – Term Memory

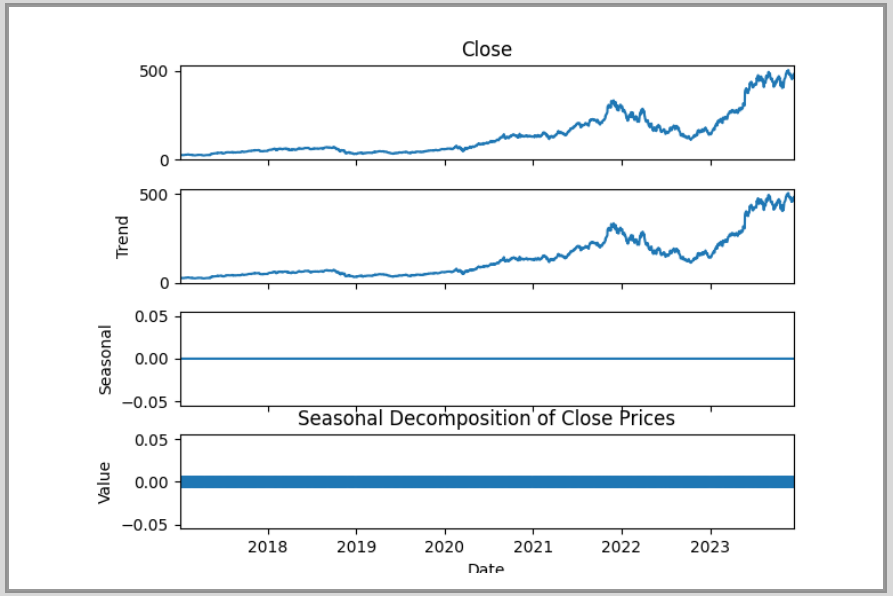
- Choose Keras for LSTM model predictive analytics.
- LSTM is used for complex time series, such as stock forecasts.
- Gates and memory cells for improved sequential processing.
- For success in language and time-series analysis, LSTM was selected.
- Implemented using Keras and interacting with TensorFlow without any issues.

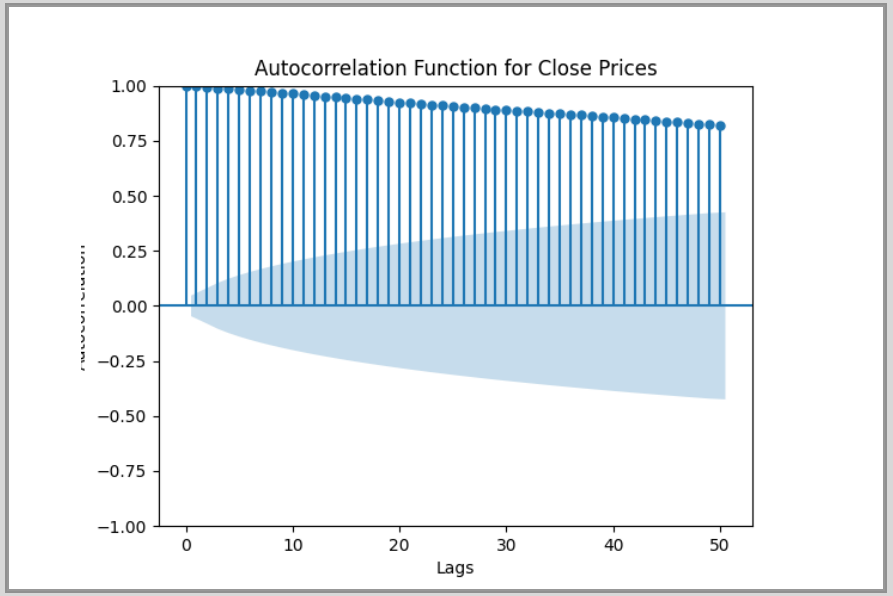


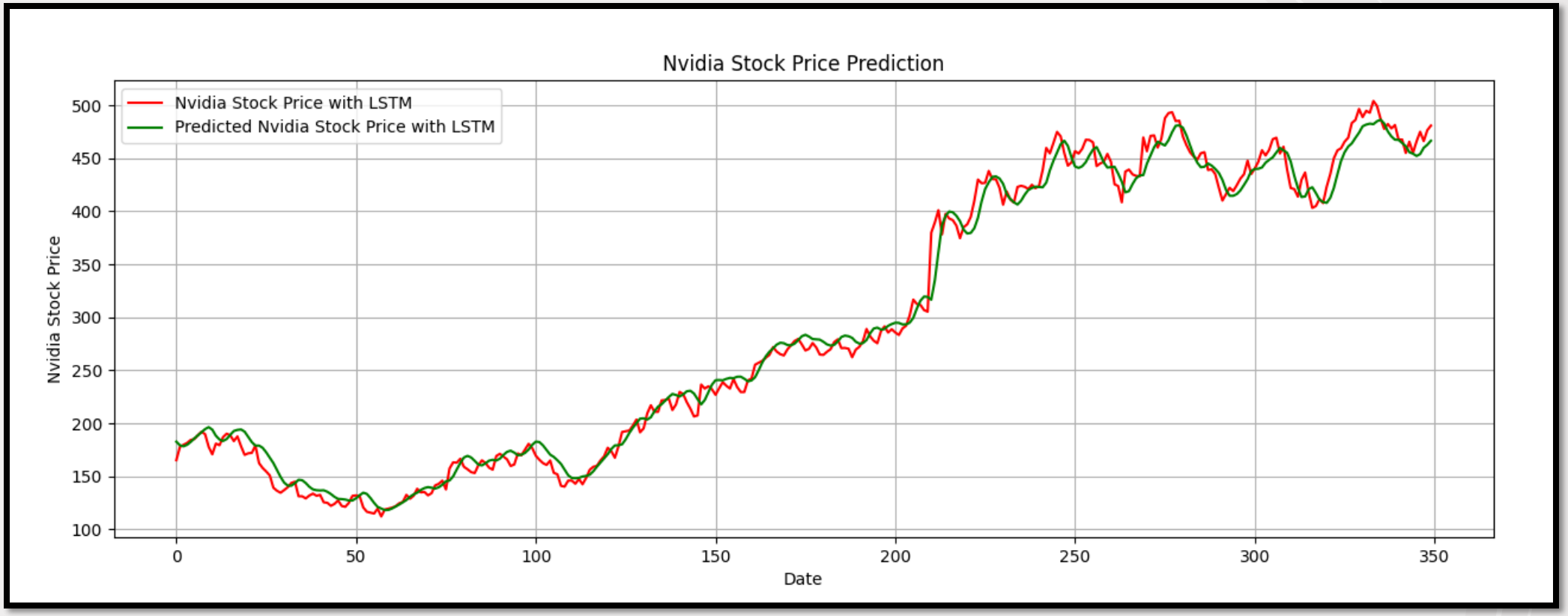
The model captures complex patterns in time-series data by employing three LSTM Layers. Further dropout layers randomly deactivate connections during training to lessen overfitting, and the final dense layer makes predictions about the future price of stocks. Using mean square error loss with the Adam optimizer during compilation.



Observed daily fluctuations,
examined the impact of past values on the current stock price, detected seasonal trends, and assessed the stability of stock prices over time.

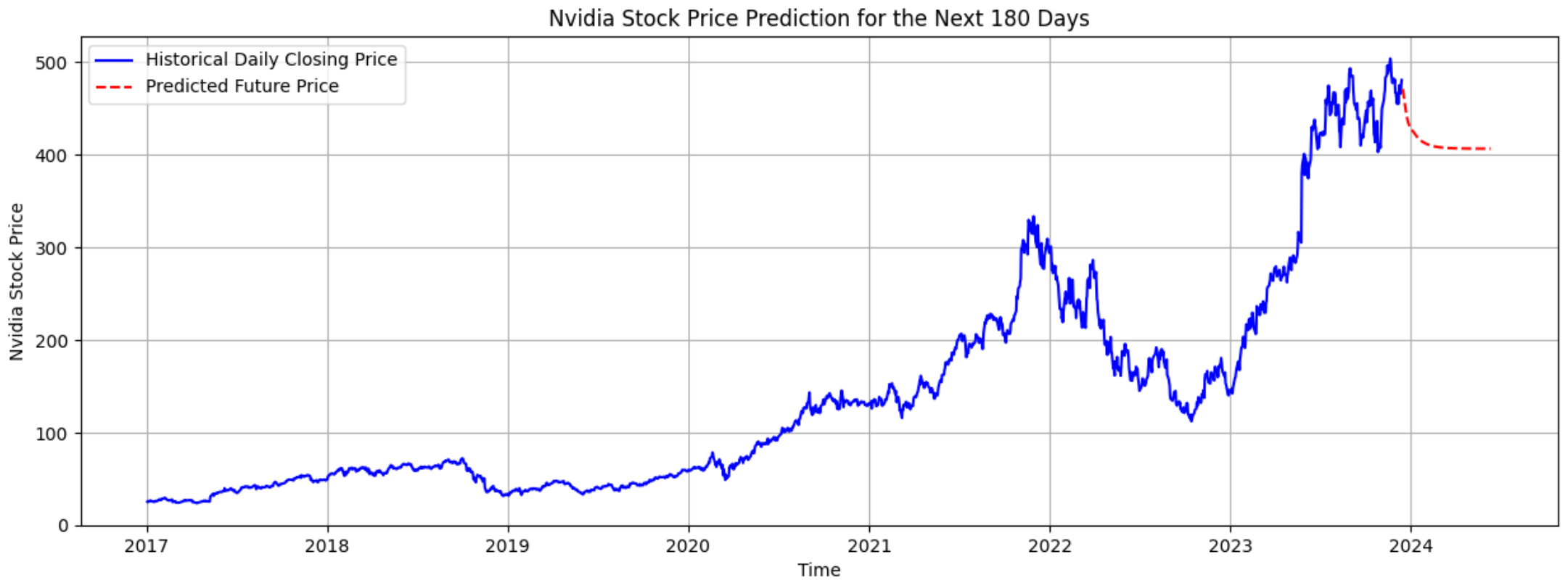






The high predictive power of our LSTM model in recognizing intrinsic stock market trends is demonstrated by the convergence of low RMSE, MAE, and MAPE. These measures show the model's effectiveness and dependability when used as a tool for stock market analysis decision-making when combined.

RMSE	**0.151**
MAE	**9.305**
MAPE	**3.60**



Over the next 180 days, the model predicts a decreasing trend in stock values based on predicted futures.

REFERENCE

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