

## Forecasting of GPU Prices Using Transformer Method

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### Abstract

GPU or VGA (graphic processing unit) is a vital component of computers and laptops, used for tasks such as rendering videos, creating game environments, and compiling large amounts of code. The price of GPU/VGA has fluctuated significantly since the start of the COVID-19 pandemic in 2020. This research aims to forecast future GPU prices using deep learning-based time series forecasting using the Transformer model. We use daily prices of NVIDIA RTX 3090 Founder Edition as a test case. We use historical GPU prices to forecast 8, 16, and 30 days. Moreover, we compare the results of the Transformer model with two other models, RNN and LSTM. We found that to forecast 30 days; the Transformer model gets a higher coefficient of correlation (CC) of 0.8743, a lower root mean squared error (RMSE) value of 34.68, and a lower mean absolute percentage error (MAPE) of 0.82 compared to the RNN and LSTM model. These results suggest that the Transformer model is an effective and efficient method for predicting GPU prices.

**Keywords:** GPU, Transformer, Forecasting, Time Series Forecasting

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