Abstract

This paper introduces a novel neural network architecture for time series forecasting. The model leverages attention mechanisms to capture temporal dependencies effectively.

Introduction

Forecasting time series data is a crucial task across various domains such as finance, healthcare, and energy. Traditional models struggle to capture long-term dependencies.

Methodology

Our proposed model combines LSTM layers with self-attention to improve both short-term and long-term forecasting accuracy. We used the M4 dataset for training and evaluation.

Results

The model outperforms classical ARIMA and standard LSTM models, achieving a 10% lower MAPE on the test set.

Conclusion

Attention-based architectures can significantly improve time series prediction tasks by capturing long-range dependencies and context more effectively.