

## ABSTRAK

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Judul : Perbandingan Lstm, Gru Dan Bi-Lstm Untuk Prediksi Harga Saham Pada Tiga Sektor Industri Indonesia

Prediksi harga saham di pasar modal Indonesia merupakan tantangan signifikan akibat volatilitas yang tinggi. Penelitian ini bertujuan untuk membandingkan performa model *deep learning*, yaitu *Long Short-Term Memory* (LSTM), *Bidirectional LSTM* (Bi-LSTM), dan Gated Recurrent Unit (GRU), dalam memprediksi harga saham di tiga sektor industri: energi (ADRO), perbankan (BBCA), dan telekomunikasi (TLKM). Data historis saham diperoleh dari Yahoo Finance untuk periode November 2019 hingga Oktober 2024. Penelitian melibatkan *preprocessing* data, normalisasi, pembagian data latih dan uji (80:20), serta evaluasi menggunakan metrik *Root Mean Squared Error* (RMSE) dan *Mean Absolute Percentage Error* (MAPE). Hasil menunjukkan GRU memiliki performa terbaik, dengan RMSE terendah (ADRO: 69.36, BBCA: 83.03, TLKM: 111.97) dan MAPE terendah (ADRO: 2.3%, BBCA: 2.3%, TLKM: 4.1%) dibandingkan LSTM dan Bi-LSTM. GRU direkomendasikan sebagai model yang optimal untuk prediksi harga saham di pasar modal Indonesia.

Kata kunci: LSTM, GRU, Bi-LSTM, prediksi saham, pasar modal.

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## ABSTRACT

Name : Laura Rizka Amanda  
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Level : Master's Degree (S2)  
Concentration : Data Mining  
Title : Comparison of LSTM, GRU, and Bi-LSTM for Stock Price Prediction in Three Industrial Sectors in Indonesia

*Stock price prediction in the Indonesian capital market is a significant challenge due to its high volatility. This study aims to compare the performance of deep learning models, namely Long Short-Term Memory (LSTM), Bidirectional LSTM (Bi-LSTM), and Gated Recurrent Unit (GRU), in predicting stock prices for three industrial sectors: energy (ADRO), banking (BBCA), and telecommunications (TLKM). Historical stock data were obtained from Yahoo Finance for the period of November 2019 to October 2024. The research involved data preprocessing, normalization, splitting data into training and testing sets (80:20), and evaluation using Root Mean Squared Error (RMSE) and Mean Absolute Percentage Error (MAPE) metrics. The results showed that GRU outperformed other models, achieving the lowest RMSE (ADRO: 69.36, BBCA: 83.03, TLKM: 111.97) and MAPE (ADRO: 2.3%, BBCA: 2.3%, TLKM: 4.1%). GRU is recommended as the optimal model for stock price prediction in the Indonesian capital market.*

*Keywords: LSTM, GRU, Bi-LSTM, stock prediction, capital market.*

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