

## Efektivitas Metode Deep Learning CNN - Bi-LSTM dan GloVe dalam Analisis Sentimen Ulasan Aplikasi MyTelkomsel

Mochammad Athian Gifari<sup>1</sup>, Yuliant Sibaroni<sup>2</sup>, Sri Suryani Prasetyowati<sup>3</sup>

<sup>1,2,3</sup>Fakultas Informatika, Universitas Telkom, Bandung

<sup>4</sup>Divisi Digital Service PT Telekomunikasi Indonesia

<sup>1</sup>mochammadathian@students.telkomuniversity.ac.id, <sup>2</sup>yuliant@telkomuniversity.ac.id,

<sup>3</sup>srisuryani@telkomuniversity.ac.id

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### Abstract

MyTelkomsel, a leading service provider application, boasts a user base exceeding one hundred million and has accumulated over nine million reviews on the Play Store. This study aims to perform sentiment analysis on these reviews using advanced machine learning techniques. Specifically, it employs a hybrid model integrating Convolutional Neural Networks (CNN), Bidirectional Long Short-Term Memory networks (Bi-LSTM), and Global Vectors for Word Representation (GloVe) embeddings to analyze user feedback effectively. The methodology harnesses the strengths of CNNs in capturing spatial dependencies and Bi-LSTMs in understanding sequential data, while GloVe embeddings offer robust word representations. Our comparative analysis among three configurations—GloVe - CNN, GloVe - Bi-LSTM, and GloVe - CNN - Bi-LSTM—demonstrates that the combined GloVe - CNN - Bi-LSTM model achieves the highest accuracy, with a rate of 93.95% in sentiment analysis of MyTelkomsel App reviews. The findings strongly suggest that the GloVe - CNN - Bi-LSTM model excels in extracting nuanced features and enhancing text understanding, thus establishing it as the optimal choice for conducting sentiment analysis in this particular task. Consequently, this research not only deepens our comprehension of user sentiments towards MyTelkomsel but also significantly contributes to the advancement of the broader field of natural language processing by robustly validating the effectiveness of hybrid analytical models.

**Keywords:** Sentiment Analysis, MyTelkomsel, CNN, Bi-LSTM, GloVe.

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