

ABSTRACT

The growing use of social media as a platform for public opinion on government policies has increased the need for automated sentiment analysis systems capable of accurately processing informal Indonesian text. The Free Nutritious Meals Program (MBG), one of the national priority programs, has become a subject of massive discussion on platform X, yet the potential of hybrid Transformer-based architectures for mapping public sentiment toward this program in greater depth remains largely unexplored. This study proposes a hybrid BERT-CNN Dual-Path architecture that combines contextual representations from IndoBERT with local feature extraction from CNN in a parallel manner for three-class sentiment classification on Indonesian tweets. The dataset consists of 6,642 labeled tweets collected using two keywords, namely “mbg” and “makan bergizi gratis”, and split at an 80:20 ratio for train-validation and test sets. Hyperparameter optimization was conducted using a three-phase Staged Grid Search method covering base training parameters, CNN 1D architecture configuration, and imbalanced data handling strategy selection. Experimental results show that the model achieves an F1-Macro of 0.8547 and an accuracy of 0.8570 on the test set, with per-class F1 scores of 0.8891 for positive, 0.8717 for negative, and 0.8034 for neutral sentiment. Sentiment distribution analysis reveals an asymmetric pattern between the two keywords, where tweets containing the phrase “makan bergizi gratis” are dominated by positive sentiment (51.15%), while tweets using the acronym “mbg” are predominantly negative (44.43%). These findings demonstrate that the sentiment distribution is influenced by the characteristics of the keywords used during data acquisition, and therefore the sentiment proportions in the dataset should be understood as an exploratory overview bound by the methodological scope of the study.

Keywords : sentiment analysis, IndoBERT, CNN, dual-path, Free Nutritious Meals Program, text classification, social media