Analisis Sentimen mengenai Ulasan Tempat Wisata Menggunakan CNN dan LSTM

Kevin Adrian Manurung[1], Kemas Muslim Lhaksmana[2]

[1,2]Fakultas Informatika, Universitas Telkom, Bandung
[1]kevinadrian@students.telkomuniversity.ac.id,
[2]kemasmuslim@telkomuniversity.ac.id

Abstract
The tourism sector has an important role in driving the economy. In order to identify the positive or negative tourists, one way is to group them using deep learning sentiment analysis. The data used the tourist attraction dataset from TripAdvisor from several categories such as water and amusement park, nature, and museum. The methods used in this research are convolutional neural network (CNN) and long short-term memory (LSTM). In addition, Word2vec for feature extraction and Synthetic Minority Over-sampling (SMOTE) for handling imbalanced datasets will be used for this research. There are several scenarios used to perform sentiment analysis, with original train data, with SMOTE train data, and with hyperparameter tuning. The use of SMOTE and hyperparameter tuning on train data improves model performance on some categories of data. The highest performance obtained on water and amusement park, nature, and museum category data is 94%, 93%, and 93% respectively for F1-score, 62%, 65%, and 60% respectively for macro F1-score.

Keywords: Deep Learning, Convolutional Neural Network, Long-short Term Memory, Tourist Attraction.