

Automatic Detection and Filtering of Negative Emotion-Bearing Contents from Social Media in Amharic Using Sentiment Analysis and Deep Learning Methods

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Abstract : The increasing prevalence of social media in Ethiopia has exacerbated societal challenges by fostering the proliferation of negative emotional posts and comments. Illicit use of social media has further exacerbated divisions among the population. Addressing these issues through manual identification and aggregation of emotions from millions of users for swift decision-making poses significant challenges, particularly given the rapid growth of Amharic language usage on social platforms. Consequently, there is a critical need to develop an intelligent system capable of automatically detecting and categorizing negative emotional content into social, religious, and political categories while also filtering out toxic online content. This paper aims to leverage sentiment analysis techniques to achieve automatic detection and filtering of negative emotional content from Amharic social media texts, employing a comparative study of deep learning algorithms. The study utilized a dataset comprising 29,962 comments collected from social media platforms using comment exporter software. Data pre-processing techniques were applied to enhance data quality, followed by the implementation of deep learning methods for training, testing, and evaluation. The results showed that CNN, GRU, LSTM, and Bi-LSTM classification models achieved accuracies of 83%, 50%, 84%, and 86%, respectively. Among these models, Bi-LSTM demonstrated the highest accuracy of 86% in the experiment.

Keywords : negative emotion, emotion detection, social media filtering sentiment analysis, deep learning.

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