

Abstract

The film industry generates scores of movie reviews annually, reflecting viewer opinion towards various aspects of movies such as story, music, performances, and so on. They are a good source to publicly analyze opinion automatically. Aspect-based and sentiment analysis of movie reviews based on a multitask classification model rooted in the Bidirectional Long Short-Term Memory (BiLSTM) structure is the theme of this study. Data was collected from Platform X through web crawling and subjected to various text preprocessing steps before feeding them into the model. Unlike traditional approaches that treat sentiment and aspect classification as independent operations, the method proposed in this work is performing both simultaneously—sentiment prediction (positive, neutral, negative) and aspect categories (plot, music, actors, others). The model was compared between three different sizes of BiLSTM layers—32, 64, and 128 units—to investigate the influence of model capacity on performance. A 10-fold cross-validation scheme also implemented to confirm the reliability and robustness of results. Experiment findings reveal that the 128-unit BiLSTM model outperformed other models across the board, particularly at picking up subtle contextual relationships, to achieve the highest accuracy score in both tasks. Although this model significantly longer to train, its improved generalization—most notably for difficult sentiment- aspect pairs such as neutral or low-resource categories—validated the trade-off. The findings validate the effectiveness of BiLSTM-based multitask learning for comprehensive movie review analysis, demonstrating the importance of model capacity in tackling complex language patterns and fine-grained opinion identification.

Keywords: Sentiment Analysis, Multi-Aspect, BiLSTM, Multitask