Abstract

Advancing technology, especially on social media platforms like X, created a vibrant space for users to share culinary experiences and recommendations through opinions and reviews. X became critical in presenting reviews and recommending places to eat with an excessively high number of active users. Facing the challenge of information overload in X that makes users confused in choosing tourist attractions, this research proposed a culinary tourism recommender system using the Content-Based Filtering (CBF) method with Word to Vector (Word2Vec) and Bidirectional Long Short-Term Memory (Bi-LSTM) as a solution to the challenge. Our proposed system integrates a combination of methods that has not been done by previous studies that only utilize one method. Utilizing culinary tourism data from Tripadvisor and user threads on Twitter, the dataset used included 2,645 tweets and five web crawling results, resulting in a matrix with a total of 200 culinary places and 44 users. Data pre-processing, such as the calculation of sentiment polarity scores using TextBlob and the application of SMOTE technique to balance the data, contributed to the improved accuracy of this research. In addition, optimization of the Bi-GRU model with various optimization methods, such as Adam, and hyperparameter tuning using Learning Rate Finder, resulted in a maximum accuracy of 94.99%, an increase of 29.4% from the baseline. The results of this research contributed significantly to the development of a more accurate and personalized culinary tourism recommender system.

Keywords: Bi-LSTM; Classification; Deep Learning; Recommender System; Word2Vec.