

Abstract

The spread of hoax news on social media is becoming increasingly concern, especially during elections, where such misinformation can influence public opinion and disrupt the integrity of the electoral process. This study aims to develop a hoax detection system using the Bayesian Neural Network (BNN) method optimized with Term Frequency-Inverse Document Frequency (TF-IDF) techniques. The results of the testing indicate that the system successfully achieves high accuracy in classifying hoax and non-hoax news. Compared to other studies, such as those using the K-Nearest Neighbor (K-NN) method which achieved an accuracy of 85%, and Naïve bayes an accuracy of 82,6%, as well as data mining research using TF-IDF that reached a lower accuracy of 57%. By leveraging probabilistic distributions, this method enables automatic classification of hoax news to improve hoax detection accuracy. The test results indicate that using TF-IDF features achieved 85,71% accuracy, Word2Vec features obtained a high accuracy of 90,24%, while BERT features yielded a lower accuracy of 75,27%. This research is expected to serve as a reference for further development of hoax detection systems and to raise public awareness of the importance of information verification.

Keywords: hoax, bayesian neural network (BNN), 2024 elections, social media, TF-IDF.