

Title: AI-Powered Approaches to Unmasking Fake News: A Simple Comparison of ML and DL Techniques

Author Names: Sajib Bormon; Jebin Ahmed Prova; MD Hasan Ahmad; Rimon; Sohanur Rahman Sohag; Hasanur Rahman Shishir

Abstract: False news spreads quickly due to the extensive distribution of incorrect or misleading information across digital channels, which is a global problem. This bias undermines the credibility of information, promotes the spread of misleading information. Utilizing machine learning and deep learning models this study examines the detection of inaccurate information. Natural Language Processing methods are used for data preprocessing on the text datasets. Five machine learning models are used in this study: Logistic Regression, Decision Tree, Random Forest, Naïve Bayes, and Passive Aggressive Classifier. After preprocessing, the accuracy values of these models are 95%, 99.7%, 99.3%, 98.9%, and 99.5%, respectively. The study demonstrates that the decision tree model has superior performance, with the LSTM algorithm following closely after. The PAC and LSTM model have also demonstrated commendable results of 99.5% accuracy. The accuracies offer valuable information regarding the constraints of each model, aiding researchers in selecting suitable ways for identifying counterfeit news. The findings assist individuals in making informed decisions on the establishment of precise and effective ways for identifying false information, which is essential to maintaining the integrity of information distribution.

Keywords: Fake news detection Natural Language Processing (NLP) Machine learning models Deep learning (LSTM) Text classification

DOI: [10.1109/COMPAS60761.2024.10795890](https://doi.org/10.1109/COMPAS60761.2024.10795890)