**Fake News Detection: An Introduction of Hybrid Machine Learning Model Outperforming Conventional Classifiers**

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ABSTRACT

The proliferation of fake news poses a significant challenge to modern information ecosystems. This paper introduces a hybrid machine learning model for fake news detection that integrates logistic regression, decision tree, and support vector machine (SVM) classifiers through a voting mechanism. The hybrid model is evaluated against conventional classifiers, specifically Multinomial Naive Bayes (MNB), Bernoulli Naive Bayes (BNB), and standalone logistic regression, using the WELFake dataset. Our hybrid model achieved an impressive accuracy of 94.8%, surpassing the performance of individual classifiers. The MNB and BNB models recorded accuracy scores of 87.9% and 85.6%, respectively, while the logistic regression model alone attained 94.2% accuracy. The experimental results demonstrate the robustness and superiority of our hybrid model in accurately identifying fake news, highlighting its potential impact on enhancing the reliability of information dissemination. The novelty of our research lies in the synergistic combination of diverse classifiers, which collectively leverage their unique strengths to produce a more accurate and reliable fake news detection system. This approach not only advances the state-of-the-art in fake news detection but also provides a practical framework for future applications in various domains requiring high-stakes content verification.

*Keywords* Fake News Detection, Hybrid Machine Learning, Multinomial Naive Bayes, Bernoulli Naive Bayes, Voting Classifier