

Deep Learning for Fake News Detection: A Model-Driven Approach to Combatting Misinformation

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Abstract: *The rapid spread of misinformation through digital platforms has emerged as a major threat to public discourse, political stability, and health communication. Detecting fake news efficiently and automatically has become a critical challenge in natural language processing and information retrieval. This paper proposes a deep learning-based framework utilizing transformer models and recurrent neural networks to classify online news content as real or fake. We benchmark our models on publicly available datasets such as LIAR and FakeNewsNet, achieving high classification accuracy. The results demonstrate that deep learning techniques, particularly attention-based architectures, significantly outperform traditional machine learning methods in detecting fake news. This study highlights the importance of context representation and semantic learning for mitigating digital misinformation*

Keywords: Fake News Detection, Deep Learning, Natural Language Processing, BERT, Bi-LSTM, Transformer Models, Misinformation, Text Classification, Content-Based Analysis, News Verification

