

Infodemic Detection on Social Media with a Multi-Dimensional Deep Learning Framework

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Abstract : Social media has become a globally connected and influencing platform. Social media data, such as tweets, can help predict the spread of pandemics and provide individuals and healthcare providers early warnings. Public psychological reactions and opinions can be efficiently monitored by AI models on the progression of dominant topics on Twitter. However, statistics show that as the coronavirus spreads, so does an infodemic of misinformation due to pandemic-related factors such as unemployment and lockdowns. Social media algorithms are often biased toward outrage by promoting content that people have an emotional reaction to and are likely to engage with. This can influence users' attitudes and cause confusion. Therefore, social media is a double-edged sword. Combating fake news and biased content has become one of the essential tasks. This research analyzes the variety of methods used for fake news detection covering random forest, logistic regression, support vector machines, decision tree, naive Bayes, BoW, TF-IDF, LDA, CNN, RNN, LSTM, DeepFake, and hierarchical attention network. The performance of each method is analyzed. Based on these models' achievements and limitations, a multi-dimensional AI framework is proposed to achieve higher accuracy in infodemic detection, especially pandemic-related news. The model is trained on contextual content, images, and news metadata.

Keywords : artificial intelligence, fake news detection, infodemic detection, image recognition, sentiment analysis

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