

Fake News Detection Based on Fusion of Domain Knowledge and Expert Knowledge

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Abstract : The spread of fake news on social media has posed significant societal harm to the public and the nation, with its threats spanning various domains, including politics, economics, health, and more. News on social media often covers multiple domains, and existing models studied by researchers and relevant organizations often perform well on datasets from a single domain. However, when these methods are applied to social platforms with news spanning multiple domains, their performance significantly deteriorates. Existing research has attempted to enhance the detection performance of multi-domain datasets by adding single-domain labels to the data. However, these methods overlook the fact that a news article typically belongs to multiple domains, leading to the loss of domain knowledge information contained within the news text. To address this issue, research has found that news records in different domains often use different vocabularies to describe their content. In this paper, we propose a fake news detection framework that combines domain knowledge and expert knowledge. Firstly, it utilizes an unsupervised domain discovery module to generate a low-dimensional vector for each news article, representing domain embeddings, which can retain multi-domain knowledge of the news content. Then, a feature extraction module uses the domain embeddings discovered through unsupervised domain knowledge to guide multiple experts in extracting news knowledge for the total feature representation. Finally, a classifier is used to determine whether the news is fake or not. Experiments show that this approach can improve multi-domain fake news detection performance while reducing the cost of manually labeling domain labels.

Keywords : fake news, deep learning, natural language processing, multiple domains

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