World Academy of Science, Engineering and Technology
International Journal of Computer and Information Engineering
Vol:18, No:04, 2024

Automated Fact-Checking by Incorporating Contextual Knowledge and Multi-Faceted Search

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Abstract : The spread of misinformation and disinformation has become a major concern, particularly with the rise of social media as a primary source of information for many people. As a means to address this phenomenon, automated fact-checking has emerged as a safeguard against the spread of misinformation and disinformation. Existing fact-checking approaches aim to determine whether a news claim is true or false, and they have achieved decent veracity prediction accuracy. However, the state-of-the-art methods rely on manually verified external information to assist the checking model in making judgments, which requires significant human resources. This study introduces a framework, SAC, which focuses on 1) augmenting the representation of a claim by incorporating additional context using general-purpose, comprehensive, and authoritative data; 2) developing a search function to automatically select relevant, new, and credible references; 3) focusing on the important parts of the representations of a claim and its reference that are most relevant to the fact-checking task. The experimental results demonstrate that 1) Augmenting the representations of claims and references through the use of a knowledge base, combined with the multi-head attention technique, contributes to improved performance of fact-checking. 2) SAC with auto-selected references outperforms existing fact-checking approaches with manual selected references. Future directions of this study include I) exploring knowledge graphs in Wikidata to dynamically augment the representations of claims and references without introducing too much noise, II) exploring semantic relations in claims and references to further enhance fact-checking.

Keywords : fact checking, claim verification, deep learning, natural language processing
Conference Title : ICNLPTPA 2024 : International Conference on Natural Language Processing and Text Processing Aids
Conference Location : New York, United States
Conference Dates : April 22-23, 2024