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Using Dynamic Knowledge Graph for Fake News Early Detection

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Summary

With the rapid rate of misinformation dissemination that is happening right now, it is important to be able to detect fake news as early as possible. In order to do that, the collection of facts that are used as the ground truth needs to be updated all the time. By having the latest facts in hand, a more accurate fact-checking can be performed, which will verify if a news is true or fake. In this project, the collection of facts is represented by a knowledge graph.

This project aims to develop a fake news detection system that uses a dynamic knowledge graph, which stores the ground truth, to help identify fake news. The system is able to extract facts, in the form of semantic triples, from news articles and update the knowledge graph accordingly with the facts. The system also has fact-checking algorithms that can infer if matches of a triple can be found in the knowledge graph or not. As the focus of the system is to assist human verifiers in doing their jobs, this system can be accessed through a web-based user interface.

An evaluation of the system shows that the quality of the triples hugely affects the performance of the fact-checker. The evaluation was done by feeding the knowledge graph with real news articles and fact-checking other real news of the same topic from other sources as a form of verification. Although the evaluation proves that there is a lot of room for improvements in terms of fact-checking, as a framework, the system has introduced the steps in the pipeline and has managed to do them well as has been also shown through usability testing.

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