

Graph Networks for Suspicious News Detection

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Abstract

Misinformation has always existed in society. Nowadays, the technological development and the appearance of social networks, pseudo-newspapers, and blogs, have aggravated this problem by facilitating the **rapid spread of websites with malicious intentions**. This fact makes it easier to use **disinformation as an attack vector for huge communities**. This has led to the development of procedures that detect the appearance of these attacks and mitigate their influence.

Thus, the development of software solutions able to support human experts to detect **suspicious behaviours and misleading information** is currently a key proposal. These systems should gather textual content from reliable sources extracting **semantic knowledge and the opinion polarity**. For instance, some solutions automatise the storage, features extraction, knowledge inference, processing, and narratives comparison from multiple media sources in a single flow.

The usage of **Machine Learning models as BERT** or other similar neural networks able to **capture patterns from texts**, and the **organisation of the knowledge through semantic networks or graphs** are some of the most common approaches to address the issue. These tools must include ad-hoc **similarity measures with the purpose of detecting the suspicious information** according to specific features that unequivocally promote its identification.

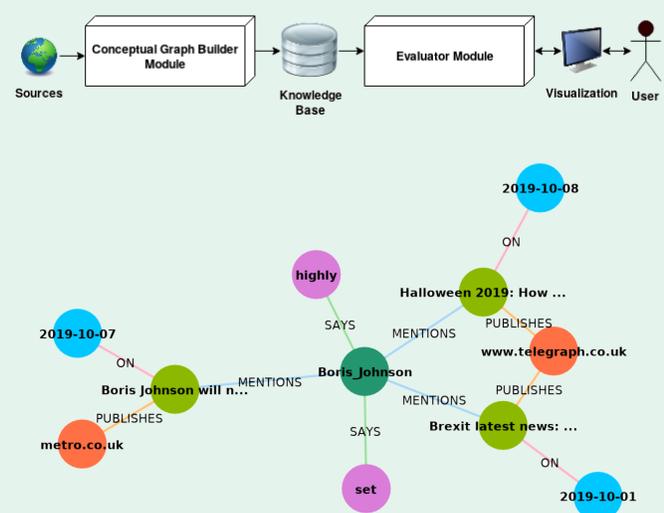


Suspicious news detection

- **Fake news (and also suspicious news) should be defined as weird news with respect to the information previously known**. Thus, fake news are those containing different information from the majority agreement.
- The **KRAKEN** proposal automatise the storage, features extraction, knowledge inference, processing, and narratives comparison from multiple sources in a single flow.
- The result is a **rich knowledge base** that allows measuring the similarity between narratives considering the temporal evolution.

Graphical interface

Architecture of the proposed framework



Proposal

In our opinion, **CHIST-ERA** program could include the following topics as part of Suspicious News Detection research:

- To develop an enhanced **complete framework to understand and analyse the textual content** in order to dynamically detect suspicious news.
- To include state-of-the-art **Machine Learning models as BERT** and **Unsupervised Learning** techniques with the purpose of making the system autonomous.
- To create a **complex knowledge database** that contains not only the temporal evolution of texts, but their semantic structure and knowledge through the use of conceptual graphs.

References

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