

The New Fake News Detection with Generated Comments from News Article

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I. INTRODUCTION

In this era, social media is one of important parts of our lives. Social media makes easier to get news and share with friends online. However, at the same moment, there are also information includes less credibility. Some of them have obvious misinformation that are made by malicious purpose, we call them “fake news”.

Fake news try to make wrong rumors by spreading on social media. This year, there are so many fake news about COVID-19 and sometimes these make wrong rumors. Director of General of the WHO called this problem “infodemic” and he told that fake news spreads faster and more easily than this virus [1]. In addition, fake news created some mayhem not only online, but also offline (real incidents) e.g. in Washington, fake news about the Pizzagate conspiracy is reported to have motivated the shooting [2]. Spreading fake news also shakes premise of democracy due to people cannot get accurate information. Therefore, there are some researches which try to spot fake news by machine learning.

The challenging point of this is there are news article which try to deceive readers and this makes harder to classify by simple rule-based method. To get more information to detection, there are some works which aggregate social context i.e. Retweet, Like, and comments report better results than only considering news text [3]. However, social contexts are not able to get before spreading. Hence, there is also a work which generate words of comments from news by CVAE to detect fake news when they are just posted [4]. Their work tries to generate comments, but generated ones are only words which have high probability of appearing.

In this work, we will propose a model which evaluate news credibility by news text and generated comments. This model is modified from generating fake news article [5] and this train not only news features but also generating comments. In training sequence includes real posted comments but test sequence does not use them in order to simulate operation in real-social media. The skill of generating comments help classification in test sequence.

We measure performance of our proposed method by some experiments with real-posted dataset.

II. METHODOLOGY

III. RESULTS

A. *Quality of classify*

B. *Word generation tendency*

IV. DISCUSSION

REFERENCES

- [1] J. Zarocostas, “How to fight an infodemic,” *The Lancet*, vol. 395, no. 10225, p. 676, 2020. [Online]. Available: <http://www.sciencedirect.com/science/article/pii/S014067362030461X>
- [2] G. s. a. agencies, “Washington gunman motivated by fake news ‘pizzagate’ conspiracy,” 12 2016. [Online]. Available: <https://www.theguardian.com/us-news/2016/dec/05/gunman-detained-at-comet-pizza-restaurant-was-self-investigating-fake-news-reports>
- [3] H. Guo, J. Cao, Y. Zhang, J. Guo, and J. Li, “Rumor detection with hierarchical social attention network,” in *Proceedings of the 27th ACM International Conference on Information and Knowledge Management*, ser. CIKM ’18. New York, NY, USA: ACM, 2018, pp. 943–951. [Online]. Available: <http://doi.acm.org/10.1145/3269206.3271709>
- [4] F. Qian, C. Gong, K. Sharma, and Y. Liu, “Neural user response generator: Fake news detection with collective user intelligence,” in *Proceedings of the Twenty-Seventh International Joint Conference on Artificial Intelligence, IJCAI-18*. International Joint Conferences on Artificial Intelligence Organization, 7 2018, pp. 3834–3840. [Online]. Available: <https://doi.org/10.24963/ijcai.2018/533>
- [5] R. Zellers, A. Holtzman, H. Rashkin, Y. Bisk, A. Farhadi, F. Roesner, and Y. Choi, “Defending against neural fake news,” in *Advances in Neural Information Processing Systems* 32, H. Wallach, H. Larochelle, A. Beygelzimer, F. d’Alché-Buc, E. Fox, and R. Garnett, Eds. Curran Associates, Inc., 2019, pp. 9054–9065. [Online]. Available: <http://papers.nips.cc/paper/9106-defending-against-neural-fake-news.pdf>