Evaluation of Nonparametric Classification Methods for Predicting Fake News from Article Titles

Nathaniel Hawkins

1 Introduction

2 Methods

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

3 Data

4 Results

Quisque ullamcorper placerat ipsum. Cras nibh. Morbi vel justo vitae lacus tincidunt ultrices. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. In hac habitasse platea dictumst. Integer tempus convallis augue. Etiam facilisis. Nunc elementum fermentum wisi. Aenean placerat. Ut imperdiet, enim sed gravida sollicitudin, felis odio placerat quam, ac

Number of Article Titles	44,266
Number of Article Titles (True)	21,416
Number of Article Titles (Fake)	22,850
Mean Length of Titles (Words)	9.29
Median Length of Titles (Words)	9
Minimum Length of Titles (Words)	1
Maximum Length of Titles (Words)	29
Number of Features After One-Hot Encoding	18,206

Table 1: Summary of dataset used in this work. Lengths shown in this table are the texts following preprocessing.

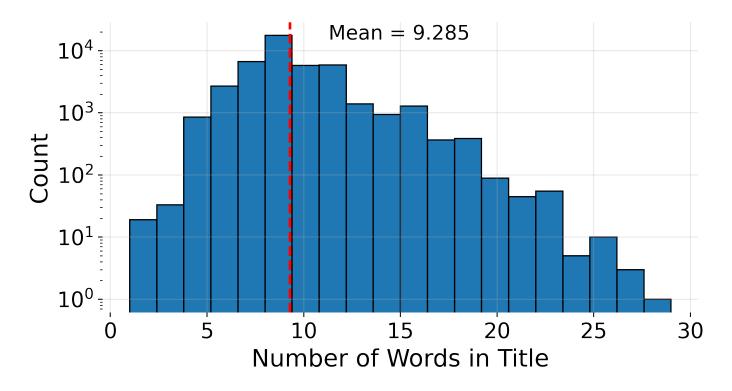


Figure 1: Histogram of length of article titles. Mean description shown with verticle red line. Y-axis is logarithmically scaled.

pulvinar elit purus eget enim. Nunc vitae tortor. Proin tempus nibh sit amet nisl. Vivamus quis tortor vitae risus porta vehicula.

5 Discussion and Conclusions

Fusce mauris. Vestibulum luctus nibh at lectus. Sed bibendum, nulla a faucibus semper, leo velit ultricies tellus, ac venenatis arcu wisi vel nisl. Vestibulum diam. Aliquam pellentesque, augue quis sagittis posuere, turpis lacus congue quam, in hendrerit risus eros eget felis. Maecenas eget erat in sapien mattis porttitor. Vestibulum porttitor. Nulla facilisi. Sed a turpis eu lacus commodo facilisis. Morbi fringilla, wisi in dignissim interdum, justo lectus sagittis dui, et vehicula libero dui cursus dui. Mauris tempor ligula sed lacus. Duis cursus enim ut augue. Cras ac magna. Cras nulla. Nulla egestas. Curabitur a leo. Quisque egestas wisi eget nunc. Nam feugiat lacus vel est. Curabitur consectetuer.

References

- [1] Álvaro Ibrain Rodríguez and L. L. Iglesias, "Fake news detection using deep learning," 2019.
- [2] A. Thota, P. Tilak, S. Ahluwalia, and N. Lohia, "Fake news detection: A deep learning approach," *SMU Data Science Review*, vol. 1, no. 3, 2018.
- [3] F. Monti, F. Frasca, D. Eynard, D. Mannion, and M. M. Bronstein, "Fake news detection on social media using geometric deep learning," 2019.
- [4] S. Girgis, E. Amer, and M. Gadallah, "Deep learning algorithms for detecting fake news in online text," in 2018 13th International Conference on Computer Engineering and Systems (ICCES), pp. 93–97, 2018.
- [5] K. Popat, S. Mukherjee, A. Yates, and G. Weikum, "Declare: Debunking fake news and false claims using evidence-aware deep learning," 2018.
- [6] T. Saikh, A. De, A. Ekbal, and P. Bhattacharyya, "A deep learning approach for automatic detection of fake news," 2020.
- [7] S. Singhania, N. Fernandez, and S. Rao, "3han: A deep neural network for fake news detection," in *Neural Information Processing* (D. Liu, S. Xie, Y. Li, D. Zhao, and E.-S. M. El-Alfy, eds.), (Cham), pp. 572–581, Springer International Publishing, 2017.
- [8] E. Qawasmeh, M. Tawalbeh, and M. Abdullah, "Automatic identification of fake news using deep learning," in 2019 Sixth International Conference on Social Networks Analysis, Management and Security (SNAMS), pp. 383–388, 2019.
- [9] M. A. Ayat Abedalla, Aisha Al-Sadi, "A closer look at fake news detection: A deep learning perspective," in *ICAAI 2019: Proceedings of the 2019 3rd International Conference on Advances in Artificial Intelligence*, pp. 24–28, 2019.
- [10] S. Kumar, R. Asthana, S. Upadhyay, N. Upreti, and M. Akbar, "Fake news detection using deep learning models: A novel approach," *Transactions on Emerging Telecommu*nications Technologies, vol. 31, no. 2, p. e3767, 2020. e3767 ETT-19-0216.R1.
- [11] R. Zellers, A. Holtzman, H. Rashkin, Y. Bisk, A. Farhadi, F. Roesner, and Y. Choi, "Defending against neural fake news," 2019.
- [12] Z. Zhou, H. Guan, M. M. Bhat, and J. Hsu, "Fake news detection via nlp is vulnerable to adversarial attacks," 2019.
- [13] R. Oshikawa, J. Qian, and W. Y. Wang, "A survey on natural language processing for fake news detection," in *Proceedings of the 12th Conference on Language Resources and Evaluation (LREC 2020)*, p. 6086–6093, 2020.
- [14] G. Bhatt, A. Sharma, S. Sharma, A. Nagpal, B. Raman, and A. Mittal, "On the benefit of combining neural, statistical and external features for fake news identification," 2017.

[15] B. Guo, H. Wang, Y. Ding, W. Wu, S. Hao, Y. Sun, and Z. Yu, "Conditional text generation for harmonious human-machine interaction," 2019.