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# Fake News Detection Using Passive-Aggressive Classifier

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## Abstract

People can get infected with fake news very quickly with misleading words and images and post them without any fact-checking. The social media life has been used to distribute counterfeit data, which has a significant negative influence on individual consumers and on a wider community. The fake news problem is tackled using a machine learning algorithm. Different classifiers are used for the purpose of identifying fake news. In this paper, Passive-Aggressive Classifier is implemented for this purpose. The approach is implemented on two datasets of fake and real news. After performing the experiment, it is observed that Passive-Aggressive Classifier provides an accuracy of 97.5%. The performance of the proposed model is compared with the existing methods. The Passive-Aggressive Classifier provides the best result compared to others.

## Keywords

Fake news detection Machine learning model Classifier

Passive-Aggressive Classifier TfIdfVectorizer

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## References

1. Metz C (2016) The bittersweet sweepstakes to build an AI that destroys fake news, Dec 2016 (Online). Available <https://www.wired.com/2016/12/bittersweet-sweepstakes-build-ai-destroys-fake-news/> (<https://www.wired.com/2016/12/bittersweet-sweepstakes-build-ai-destroys-fake-news/>)

2. Granik M, Mesyura V (2017) Fake news detection using naive Bayes classifier. In: 2017 IEEE first Ukraine conference on electrical and computer engineering (UKRCON), Kiev, Ukraine  
[Google Scholar](https://scholar.google.com/scholar?q=Granik%20M%2C%20Mesyura%20V%20%282017%29%20Fake%20news%20detection%20using%20naive%20Bayes%20classifier.%20In%3A%202017%20IEEE%20first%20Ukraine%20conference%20on%20electrical%20and%20computer%20engineering%20%28UKRCON%29%2C%20Kiev%2C%20Ukraine%29) (https://scholar.google.com/scholar?q=Granik%20M%2C%20Mesyura%20V%20%282017%29%20Fake%20news%20detection%20using%20naive%20Bayes%20classifier.%20In%3A%202017%20IEEE%20first%20Ukraine%20conference%20on%20electrical%20and%20computer%20engineering%20%28UKRCON%29%2C%20Kiev%2C%20Ukraine%29)
3. Bhowmik D, Zargari S, Ajao O (2018) Fake news identification on twitter with hybrid CNN and RNN models. In: Proceedings of the 9th international conference on social media and society  
[Google Scholar](https://scholar.google.com/scholar?q=Bhowmik%20D%2C%20Zargari%20S%2C%20Ajao%20O%20%282018%29%20Fake%20news%20identification%20on%20twitter%20with%20hybrid%20CNN%20and%20RNN%20models.%20In%3A%20Proceedings%20of%20the%209th%20international%20conference%20on%20social%20media%20and%20society%29) (https://scholar.google.com/scholar?q=Bhowmik%20D%2C%20Zargari%20S%2C%20Ajao%20O%20%282018%29%20Fake%20news%20identification%20on%20twitter%20with%20hybrid%20CNN%20and%20RNN%20models.%20In%3A%20Proceedings%20of%20the%209th%20international%20conference%20on%20social%20media%20and%20society%29)
4. Zheng L, Zhang J, Cui Q, Li Z, Yang PS, Yang Y (2018) TI-CNN: convolutional neural networks for fake news detection. arXiv preprint [arXiv:1806.00749](https://arxiv.org/abs/1806.00749) (http://arxiv.org/abs/1806.00749)
5. Lakshmanarao A, Swathi Y, Kiran TSR (2019) An efficient fake news detection system using machine learning. Int J Innov Technol Exploring Eng (IJITEE) 8(10)  
[Google Scholar](https://scholar.google.com/scholar?q=Lakshmanarao%20A%2C%20Swathi%20Y%2C%20Kiran%20TSR%20%282019%29%20An%20efficient%20fake%20news%20detection%20system%20using%20machine%20learning.%20Int%20J%20Innov%20Technol%20Exploring%20Eng%20%28IJITEE%29%208%2810%29%29) (https://scholar.google.com/scholar?q=Lakshmanarao%20A%2C%20Swathi%20Y%2C%20Kiran%20TSR%20%282019%29%20An%20efficient%20fake%20news%20detection%20system%20using%20machine%20learning.%20Int%20J%20Innov%20Technol%20Exploring%20Eng%20%28IJITEE%29%208%2810%29%29)
6. Ahmed H, Traore I, Saad S (2017) Detection of online fake news using n-gram analysis and machine learning techniques. In: International conference on intelligent, secure, and dependable systems in distributed and cloud environments ISDDC 2017  
[Google Scholar](https://scholar.google.com/scholar?q=Ahmed%20H%2C%20Traore%20I%2C%20Saad%20S%20%282017%29%20Detection%20of%20online%20fake%20news%20using%20n-gram%20analysis%20and%20machine%20learning%20techniques.%20In%3A%20International%20conference%20on%20intelligent%2C%20secure%2C%20and%20dependable%20systems%20in%20distributed%20and%20cloud%20environments%20ISDDC%202017%29) (https://scholar.google.com/scholar?q=Ahmed%20H%2C%20Traore%20I%2C%20Saad%20S%20%282017%29%20Detection%20of%20online%20fake%20news%20using%20n-gram%20analysis%20and%20machine%20learning%20techniques.%20In%3A%20International%20conference%20on%20intelligent%2C%20secure%2C%20and%20dependable%20systems%20in%20distributed%20and%20cloud%20environments%20ISDDC%202017%29)
7. Khattar D, Goud JS, Gupta M, Varma V (2019) MVAE: multimodal variational autoencoder for fake news detection. In: The web conference-2019, San Francisco  
[Google Scholar](https://scholar.google.com/scholar?q=Khattar%20D%2C%20Goud%20JS%2C%20Gupta%20M%2C%20Varma%20V%20%282019%29%20MVAE%3A%20multimodal%20variational%20autoencoder%20for%20fake%20news%20detection.%20In%3A%20The%20web%20conference-2019%2C%20San%20Francisco%29) (https://scholar.google.com/scholar?q=Khattar%20D%2C%20Goud%20JS%2C%20Gupta%20M%2C%20Varma%20V%20%282019%29%20MVAE%3A%20multimodal%20variational%20autoencoder%20for%20fake%20news%20detection.%20In%3A%20The%20web%20conference-2019%2C%20San%20Francisco%29)
8. Wang Y, Ma F, Jin Z, Yuan Y, Xun G, Jha K, Su L, Gao J (2019) EANN: event adversarial neural networks for multi-modal fake news detection. In: 24th ACM SIGKDD international conference on knowledge discovery & data mining, London

Google Scholar (<https://scholar.google.com/scholar?q=Wang%20Y%2C%20Ma%20F%2C%20Jin%20Z%2C%20Yuan%20Y%2C%20Xun%20G%2C%20Jha%20K%2C%20Su%20L%2C%20Gao%20J%20%282019%29%20EANN%3A%20event%20adversarial%20neural%20networks%20for%20multi-modal%20fake%20news%20detection.%20In%3A%2024th%20ACM%20SIGKDD%20international%20conference%20on%20knowledge%20discovery%20%26%20data%20mining%2C%20London>)

9. Markines B, Cattuto C, Menczer F (2009) Social spam detection. In: 5th international workshop on adversarial information retrieval on the web, 2009 Google Scholar (<https://scholar.google.com/scholar?q=Markines%20B%2C%20Cattuto%20C%2C%20Menczer%20F%20%282009%29%20Social%20spam%20detection.%20In%3A%205th%20international%20workshop%20on%20adversarial%20information%20retrieval%20on%20the%20web%2C%202009>)
10. Lu J, Zhao P, Hoi SCH (2016) Online passive-aggressive active learning. <https://doi.org/10.1007/s10994-016-5555-y> (<https://doi.org/10.1007/s10994-016-5555-y>)
11. Available <https://drive.google.com/file/d/oB3e3qZpPtccsMFo5bk9Ib3VCc2c/view> (<https://drive.google.com/file/d/oB3e3qZpPtccsMFo5bk9Ib3VCc2c/view>) (Online)
12. Crammer K, Dekel O, Keshet J, Shalev-Shwartz S, Singer Y (2006) Online passive-aggressive algorithms. *J Mach Learn Res* 7:551–585 MathSciNet (<http://www.ams.org/mathscinet-getitem?mr=2274378>) zbMATH (<http://www.emis.de/MATH-item?1222.68177>) Google Scholar ([http://scholar.google.com/scholar\\_lookup?title=Online%20passive-aggressive%20algorithms&author=K.%20Crammer&author=O.%20Dekel&author=J.%20Keshet&author=S.%20Shalev-Shwartz&author=Y.%20Singer&journal=J%20Mach%20Learn%20Res&volume=7&pages=551-585&publication\\_year=2006](http://scholar.google.com/scholar_lookup?title=Online%20passive-aggressive%20algorithms&author=K.%20Crammer&author=O.%20Dekel&author=J.%20Keshet&author=S.%20Shalev-Shwartz&author=Y.%20Singer&journal=J%20Mach%20Learn%20Res&volume=7&pages=551-585&publication_year=2006))

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