

Paper Title: Analysis of Tweets for Cyberbullying Detection

Paper Link: <https://ieeexplore.ieee.org/document/10176416>

Summary:

1. **Motivation:** With the rise of social media usage, cyberbullying has been a problem to be dealt with. To combat cyberbullying this paper presents a real-time cyberbullying detector.
2. **Contribution:** This paper contribute in three different aspects. Firstly, it verifies the effectiveness of various ML algorithms and preprocessing techniques for cyberbullying detection on Twitter. Secondly, it hands out a practical system for real-time cyberbullying detection. Finally, using image captioning to clear out the spam tweets.
3. **Methodology:** Steps that are used to execute the idea are data collection, precrocessing of the dataset, training the classifier. Different ML classifier has been used such as Random forest, AdaBoost and Gradient Boosting. One of the important feature that this paper present is real-time tweet collection and classification for which selenium webdriver is used.
4. **Conclusion:** To conclude, this paper present a real-time cyberbullying detection system using ML algorithms and NLP techniques. Gradient Boost, AdaBoost and Random Forest shows a high level of accuracy in detecting cyberbullying on tweets. It also presents how spam tweet can be detected by comparing images and text within tweets. Most importantly, it creates a groundwork for future investigation on this topic.

Limitations:

Limitations that can be mentioned are :

- a) This paper mainly focuses on detection of cyber-bullying for a specific platform. It may not work for other platforms.
- b) The system is built for a specific language which wont work for other languages.

Synthesis: This paper shows a real-time cyberbullying detection system for Twitter, utilizing Natural Language Processing (NLP) and Machine Learning (ML). It compares various ML algorithms, with Random Forest providing the best results after tuning. The system uses Selenium for scraping tweets and an image captioning model to filter spam. It aims to prevent cyberbullying by detecting and removing harmful content online, highlighting the importance of selecting appropriate ML algorithms and preprocessing techniques for effective cyberbullying detection on social media platforms. In my opinion, this paper sets a work example for people who wants to do extensive research on this topic in the future. Ideas presented in paper can be taken to many different directions such as applying this model for other social media platform. As it is mentioned in the end, very niche type of cyberbullying like irony, sarcasm can also be implemented. Overall, our project takes inspiration from this paper due to its excellent contribution towards cyberbullying detection.