Big Data Social Media Cyber Bullying Predection Using Machine Learning Algorithms

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1. ABSTRACT:

Modern young people ("digital natives") have grown in an era dominated by new technologies where communications are pushed to quite a real-time level, and pose no limits in establishing relationships with other people or communities. The fast growing use of social networking sites among the teens have made them vulnerable to get exposed to bullying. Comments containing abusive words effect psychology of teens and demoralize them. In this work we have devised methods to detect cyber bullying using supervised learning techniques. Cyber bullying is the use of technology as a medium to bully someone. Although it has been an issue for many years, the recognition of its impact on young people has recently increased. Through machine learning, we can detect language patterns used by bullies and their victims, and develop rules to automatically detect cyber bullying content. The data we used for our work was collected from the website kagle.com; it contains a high percentage of bullying content.

Key words: Cyber bullying, data encryption, image.

I INTRODUCTION

SOCIAL Media is a group of Internet based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content. Via social media, people can enjoy enormous information, convenient communication experience and so on. However, social media may have some side effects such as cyberbullying, which may have negative impacts on the life of people, especially children and teenagers. Cyberbullying can be defined as aggressive, intentional actions performed by an individual or a group of people via digital communication methods such as sending messages and posting comments against a victim. Different from traditional bullying that usually occurs at school during face to face communication, cyberbullying on social media can take place anywhere at any time. For bullies, they are free to hurt their peers' feelings because they do not

need to face someone and can hide behind the Internet. For victims, they are easily exposed to harassment since all of us, especially youth, are constantly connected to Internet or social media. As reported in [2], cyberbullying victimization rate ranges from 10% to 40%. In the United States, approximately 43% of teenagers were ever bullied on social media [3]. One way to address the cyberbullying problem is to automatically detect and promptly report bullying messages so that proper measures can be taken to prevent possible tragedies. To add up a social media called Twitter, Social media a powerful platform where you can have full freedom on what one wants to express or say; whether a negative or a positive one. Suicide is the act of taking one's own life. Suicide isthe second leading cause of death globally among people 15 to 29 years of age, according to the 2014 global report on preventing suicide by the World Health Organization [3]. Close to 800,000 people die due to suicide every year. For every suicide, there are more people who attempt suicide every year. A prior suicide attempt is the most important risk factor for suicide in the general population. The age-standardized suicide rate in the Philippines is 5.8 for male, 1.9 for females, and 3.8 for both sexes. The rate is based from the number of cases affected per sample size of 100,000 people [2]. It is a misconception that suicide and depression affect mostly the poor. Stories abound of the growing prevalence of serious depression and suicide incidents in colleges attended by middle-class and rich kids[4].

2. RELATED STUDY

The major contributors to cyberbullying are social networking sites. The dynamic nature of these sites helps in the growth of online aggressive behaviour.The anonymous feature of user profiles increases the complexity to identify the bully. Social media is popular due to its connectivity in the form of networks. But this can be harmful when rumors or bullying posts are spread into the network which cannot be easily controlled. Twitter and Facebook can be taken as examples which are popular among various social media sites. According to [3] facebook users have more than 150 billion connections which gives the idea about how bullying content can be spread within the network in a fraction

of time. To manually identify these bullying messages over this huge network is difficult. There should be an automated system where such kinds of things can be detected automatically thereby taking appropriate action. The victims mainly consist of women and teenagers [4].Intense effect on mental and physical health of the victims [2] in such kind of activities highers the risk of depression leading to suicidal cases. Therefore to control cyberbullying there is need of automatic detection or monitoring systems.

3 METHODOLOGY

Machine or deep learning algorithms help researchers understand big data [1]. Abundant information on humans and their societies can be obtained in this big data era, but this acquisition was previously impossible [2]. One of the main sources of human-related data is social media (SM). By applying machine learning algorithms to SM data, we can exploit historical data to predict the future of a wide range of applications. Machine learning algorithms provide an opportunity to effectively predict and detect negative forms of human behavior, such as cyberbullying [3]. Big data analysis can uncover hidden knowledge through deep learning from raw data [1]. Big data analytics has improved several applications, and forecasting the future has even become possible through the combination of big data and machine learning algorithms [4]. An insightful analysis of data on human behavior and interaction to detect and restrain aggressive behavior involves multifaceted angles and aspects and the merging of theorems and techniques from multidisciplinary and inter disciplinaryelds. The accessibility of large-scale data produces new research questions, novel computational methods, interdisciplinary approaches, and outstanding opportunities to discover several vital inquiries quantitatively. However, using traditional methods (statistical methods) in this context is challenging in terms of scale and accuracy. These methods are commonly based on organized data on human behavior and small-scale human networks (traditional social networks). Applying these methods to large online social networks (OSNs) in terms of scale and extent causes several issues. On the one hand, the explosive growth of OSNs enhances and disseminates aggressive forms of

behavior by providing platforms and networks to commit and propagate such behavior. On the other hand, OSNs offer important data for exploring human behavior and interaction at a large scale, and these data can be used by researchers to develop effective methods of detecting and restraining misbehavior and/or aggressive behavior. OSNs provide criminals with tools to perform aggressive actions and networks to commit misconduct. Therefore, methods that address both aspects (content and network) should be optimized to detect and restrain aggressive behavior in complex systems.

4 RESULTS EXPLANATION

Automatic solutions related to cyber bullying detection are not properly studied in the past. This is one of the main reason for which there exists insufficient training datasets available. Some datasets are available instead on general sentiment analysis and all of them are used in supervised approaches. Although bullying messages are posted every day compared to hundreds of thousands of messages posted every second, they are very sparse. Collecting enough training data is an actual big challenge

since random sampling will lead only to few bully messages. We selected two distinct datasets,recently published, related to the social network FormSpring.me and YouTube.

In This Architecture diagram we have two modules System Module and user Module. In the system module we have system and database here the system is already pre-trained from kagle.com we will extracting the ready dataset. The system is directly connected to the database. In User module using application user have to login and sign in using that application user can add friend and send friend request. If quotes added by the user is got any kind bulling words it will be sent to algorithm, here we are using the SVM algorithm there we are covering the comments with star symbol again it will sent to user and it is posted on the public if it is doesn't contain any bulling words it is

considered as normal comment and it will sent to public.

Fig.4.1. Home page.

Fig.4.2. Registation page.

Fig.4.3. User login page.

Fig.4.4. Authorize details.
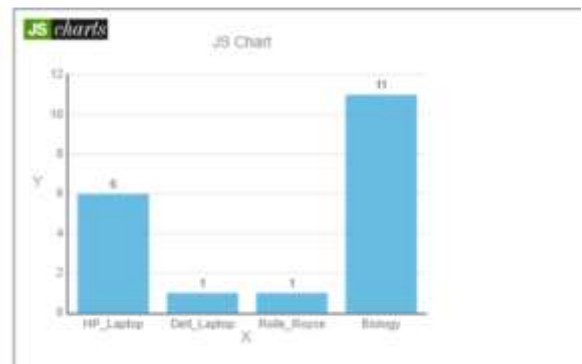
Cyberbullying Review Results..

Fig.4.5. OUTPUT results.
CONCLUSION

This study reviewed existing literature to detect aggressive behavior on SM websites by using machine learning approaches. We specifically reviewed four aspects of detecting cyberbullying messages by using machine learning approaches, namely, data collection, feature engineering, construction of cyberbullying detection model, and evaluation of constructed cyberbullying detection models. Several types of discriminative features that were used to detect cyberbullying in online social networking sites were also summarized. In addition, the most effective supervised machine learning classifiers for classifying cyberbullying messages in online social networking sites were identified. One of the main contributions of current paper is the definition of evaluation metrics to successfully identify the significant parameter so the various machine learning algorithms can be evaluated against each other. Most importantly we summarized and identified the important factors for detecting cyberbullying through machine learning techniques specially supervised learning. For this purpose, we have used accuracy, precision recall and f-measure which gives us the area under the curve function for modeling the behaviors in cyberbullying. Finally, the main issues and open research challenges were described and discussed.

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