Filtering Unwanted Messages and Misbehaving Users from OSN User Walls

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ABSTRACT: Online Social Network (OSN) users are not able to control the messages posted on their private wall. The contents which are unwanted with respect to OSN users should be avoided to display. For this purpose we propose a system which will allow an OSN user to have direct control on messages posted on their private space (User Wall). This system allows users to customize the filtering rules to be applied to their walls and we exploit machine learning based soft classifier automatically labelling messages in support of content based filtering. In addition to this we proposed the system to blocked misbehaving users also we exploit Blacklist (BL) mechanism in this paper. BL is use to determine which user should be inserted in BL and decide when to retention of the user finish.

KEYWORDS: Online social network, Blacklist, Machine Learning, Filtered Wall, Filtering Rules.

I. INTRODUCTION

Online social Network are today's one of the most popular interactive medium to share, communicate and distribute an important amount of human living information .The information shared is in the form of text, audio, video, images in tremendous quantity. In today's OSN there is a very high chance of posting unwanted contents by unwanted users on private user walls. Which will harmful to the security of OSN users. Today's OSN sites provide very little support for this. So to control posting unwanted messages on the user walls we are implementing Filtering Rules (FRs) in our system. Also Blacklist (BL) will maintain in this system along with FR. The filtering rules use to give users the ability to automatically control the messages written on their private walls by filtering out unwanted messages and blacklist will allow users to put other users in blacklist and decide when to retain that user.

II. RELATED WORK

Marco Vanetti, Elisabetta Binaghi, elena Ferrari, BArbara Carminati, and Moreno Carullo [1] provide the user to have a straight rule over their own wall to avoid the unwanted messages. Aim of this paper is, user have a direct control over messages posted on their own wall. So automated system called Filtered wall (FW), which have a capacity to filter unwanted message. This system will block the undesired message sent by the user. Drawback of this paper is the user will not be blocked, only the message posted by the user will blocked. Content based message filtering and short text classifier support this system .To overcome the problem of this paper, Blacklist rule will be implemented as future enhancement.
L.Roy and R.J.Mooney uses Collaborative filtering method, but in the proposed system content based recommendation is used. It explains a content based book recommending system that develops information extraction and machine learning algorithm for text categorization. B.Carminati, M.Vanetti, E.ferrari, M.Carullo, and E.Binaghi[7] Quality of classification is considered as the main aim. This system can usually take decision about the messages which is blocked, due to the tolerance depends on statistical data.
F.Sebastiani[3] Efficiency is good , labor power will be saved is the advantage of this paper. The main approach used here is text categorization. Comparison will be performed between human expert and labor power expert.
R.E.Schapire and Y.Singer[6] AdaBoost consist of two extension, specially planned for multi-class, multi labeled data. In first extension ,learned classifier is evaluated to predict a good approximation of sets[6].
M.Chau and L.Roy [2] Related data are very complicated to find with search engine. Location of relevant data, filtering irrelevant data are the issues. Web page is represented with content based and link based feature in proposed. Feed

Forward and back propogation neural network approach is used for proposed system. Proposed approach can be applied for web content management. A.Adomavicius and G.Tuzhilin[4] Recommender system's over view is explained. Main three approach used in present generation of recommendation system are hybrid, content based and collaborative recommendation. Many restrictions of this system are elucidated. But argue to enlarge the advance system of recommender. So that this system can be used in wide variety. Extensions embrace sympathetic of users are enhanced, integrating the contextual information in recommendation method, sustain for multi criteria ranking.

B.Sriram, D.Fuhry, E.Demir, H.Ferhatosmanoglu, and M.Demirbas[5] in online services like twitter , users may grown to be plagued by the rare data. Resolution of this crisis is short text messages classification. To solve this problem , we suggest a small set of domain specific feature is haul out from user profile. This approach successfully classifies the text into generic classes.

V.Bodicev and M.Sokolova[6] classification of text enclose complex and specific terminology , need the application of learning method. Partial Matching method is applied which condense the text for confining the text feature. Partial matching develop a language model. The output of partial matching compression provides consistent precision of text classification.

J.Colbeck[7] Social network is the common interest group in web. To make the trust many explanations are required. Two level approaches are stated to combine annotation ,trust and provenance. we state an algorithm for concluding trust relationship with provenance information and trust annotation in web social network. Film trust application is introduced which uses trust to movie rating and ordering the review. we consider film trust give the good output.

M.Carullo, E.Binaghi, and I.Gallo[8] clustering of document is useful in many field. Two categories of clustering general purpose and text oriented , these both will be used for clustering of data. Novel heuristic online document clustering is anticipated , which is expert in clustering of text oriented parallel measures. Presentation measure is done in F-measure, then it will be match up with other methods.

III. EXISTING SYSTEM

Today's Online Social Networks provides very little support to prevent unwanted messages on user's wall. For example Facebook allows users to state who is allowed to insert messages in their wall (i.e Friends, Friends of friends, and defined group of friends). However, no content based preferences supported and therefore it is not possible to prevent undesired messages, such as vulgar or political, no matter of the user who posts them.

The social networking services are aware of providing filtering abilities to its users is MyWOT a social networking service which gives its subscribers the ability to 1.Rate resources with respect to four criteria's: trustworthiness, vendor reliability, privacy, and child safety, 2. Specify preferences determining whether   the browser should block access to a given resource or should simply return a warning message on the basis of the specified rating.

In existing system the messages are blocked by the users but user's who send that messages will not be blocked.

IV. PROPOSED SYSTEM

Here we evaluate an automated system called Filtered Wall (FW), which is able to filter unwanted messages from OSN user walls. We exploit machine learning (ML) text categorization techniques to automatically assign with each short text messages a set of categories based on its content. After classification system provides a powerful rule layer exploiting a flexible language to specify Filtering Rules (FRs) by which user's can state what contents should not displayed on their wall. Filtering rules exploits user profiles, user relationship as well as the output of the ML text categorization process to state the filtering criteria to be enforced.

In addition, the system provides the support for user's defined blacklist(BL),that is list of user's that are temporarily prevented to post any kind of messages on user's wall.

V. FILTERED WALL ARCHITECTURE

The three tier architecture is used in OSN services. These three layers are,

    A.   *Social Network Manager.*
    B.   *Social Network Application.*
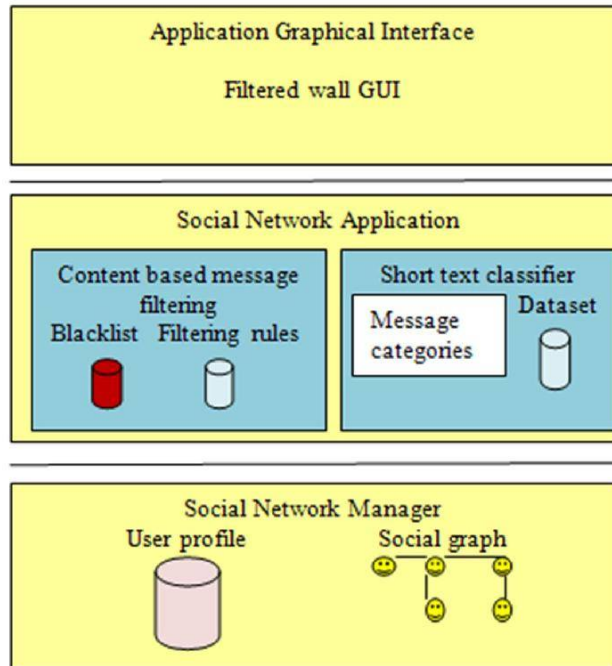   C.   *Graphical User Interface.*

Fig. 1. Filtered wall architecture.

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A. *Social Network Manager(SNM):*

The first layer is social network manager provides the basic OSN functionalities like profiles. It also maintains all the data regarding to the user profile. After maintaining and administrating all users data will provide for second layer for applying filtering rules(FRs) and blacklist(BL).

B. *Social Network Application(SNA):*

In second layer content based message filtering and short text classifier is designed. This is the responsible layer for message categorization. Also blacklist is managed by this layer.

C. *Graphical User Interface(GUI)*:

The GUI provides a space for users who want to post his messages in the form of input. Here FRs and BLs are exploits for the user who are temporary prevented to publish messages on user's walls.

As per figure. The system will work as follows.

- When user wants to post messages of his friend's wall (private wall of friends) messages will captured by FW.
- A ML based text classifier extracts metadata from the content of the messages.
- FW exploits metadata from text classifier along with data received from social graph and user's profile to implement the Filtering and Blacklist rules.
- Depending on the result of the previous step, the message will be available or filtered by FW.

VI. FILTERING RULES (FR)

As per the user requirement, user will be able to customize the filtering rules. User has authority to update the filtering rules as well as to decide which message should be blocked or displayed on his wall. To specify filtering rules user profile and user social relationship is considered.

A filtering rule FR is a tuple (author, creatorSpec, contentSpec, action), where,

- author is the user who identifies the rule
- creatorSpec is a creator specification,
- contentSpec is a Boolean expression defined on content constraints of the form (C, ml), where C is a class of the first or second level and ml is the minimum membership level threshold required for class C to make the constraint satisfied;
- action $\in$ {block, notify} denotes the action to be performed by the system on the messages matching contentSpec and created by users identified by creatorSpec.

In that, the system is not able to estimate whether the user profile matches the FR. Because how to agreement with such messages depend on the considered circumstances and on the wall owner approaches, we request the wall owner to choose whether to block or notify messages originating from a user whose profile does not match against the wall owner FRs because of missing attributes.

VII. BLACKLIST (BL)

We exploit a blacklist (BL) mechanism to avoid messages from misbehaving users. BL is managed by the system according to user's need. BL is able to,

- Detects who are the users to be inserted in the BL.
- Block all their messages.
- Decide when user retained in the BL finished

BL is managed by the system, which should be able to find who are the users to be inserted in the BL and decide when users retention in the BL is finished. To achieve this certain rules are set these rules are called as Blacklist rule.

A BL is a tuple(author, creatorSpec, CreatorBehaviour,t)

- author is the OSN user who identifies the rule, i.e., the wall owner,
- creatorSpec is a creator requirement,
- CreatorBehavior consists of two components RFBlocked and minBanned. RFBlocked = (RF, mode, window) is defined such that

RF ¼ #bMessages/#tMessages , where #tMessages is the total number of messages that each OSN user identified by creatorSpec has tried to publish in the author wall (mode ¼ myWall) or in all the OSN walls (mode¼ SN); whereas #bMessages is the number of messages among those in #tMessages that have been blocked; window is the time period of making of those messages that have to be considered for RF computation; minBanned = (min, mode, window), where min is the minimum number of times in the time interval specified in window that OSN users identified by creatorSpec have to be inserted into the BL due to BL rules specified by author wall (mode = myWall)

or all OSN users (mode = SN) in order to satisfy the constraint.

- T denotes the time phase the users recognized by creatorSpec and creatorBehavior have to be banned from author wall

VIII. CONCLUSION

In this paper, we proposed a system which will categorize the messages posted on OSN user walls. We exploit a machine learning text categorization technique which will automatically assign a category to each message based on its contents. We exploit Filtering Rules (FRs) to decide which message should be display or should not be display on user walls based on OSN user requirement. We also exploit Blacklist (BL) mechanism which will block the misbehaving users to post messages on other users private space.

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