A SYSTEM TO FILTER OSN USER WALL

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ABSTRACT:

As we know, today everyone is using On-line Social Networks (OSNs) to communicate and share information. Therefore one of the fundamental issue in today OSNs is to provide users to have ability to control over the messages posted on their own private space to avoid that undesired content to be displayed. Up to now OSNs provide little support to this requirement. To provide this, we propose a system allowing OSN users to have a direct control on the messages posted on their walls. This is accomplished through a flexible rule-based system, which allows users to customize the filtering criteria to be applied to their walls, and a Machine Learning based soft-classifier which automatically produce membership labels in support of content-based filtering. The flexibility of the system in terms of filtering options is enhanced through the management of Blacklists. The proposed system gives security to the On-line Social Networks.

Key Words: On-line Social Networks, Information Filtering, Short Text Classification, Policy-based Personalization.

I. INTRODUCTION

Most common interactive medium to communicate and share information is online social network. Daily and continuous communications implies the exchange of several types of content, including free text, audio, video, images etc. As the Amount of content will be very vast information filtering is used OSN provide very less amount of security in posting unwanted messages. Information filtering is used for unrelated purpose. Ability of a user to automatically control the messages written on the user wall, by filtering additional communication will be termed as information filtering [2]. Machine learning text categorization technique is also used in proposed, to automatically assign the short text based on the content [4]. Techniques include some steps, short text classifier is one of the step it includes text representation, machine learning based classification, radial basis

function network. Second step is of filtering rules and blacklist management. Filtering rules consists of creator specification and filtering rule .Finally, Blacklist is included. In proposed Blacklist rule is implemented. Automated system called filtered wall is evaluated, which is used to filter unwanted messages from user wall. Content based message filtering is supported in proposed system which is not supported to existing system. Two level classification is performed. Short messages are categorizes as Neutral and Non neutral in first level. Neutral messages are classified in second stage. Apart from classification, powerful rule is exploited called filtering rules.

II. RELATED WORK

In system information filtering techniques are used to remove unwanted contents by using customizable content based filtering rules, Machine learning approach; according to user's interest and recommends an item. Recommender systems works in following ways.

2.1 Content-based filtering

 In content based filtering to check the user's interest and previous activity as well as item uses by users best match is found [1]. For example OSNs such as Facebook used content based filtering policy. In that by checking users profile attributes like education, work area, hobbies etc. suggested friend request may send. The main purpose of content based filtering, the system is able to learn from user's actions related to a particular content source and use them for other content types.

2.2 Collaborative filtering

 In collaborative filtering information will be selected on the basis of user's preferences, actions, predicts, likes, and dislikes. Match all this information with other users to find out similar items. Large dataset is required for collaborative filtering system. According to user's likes and dislikes items are rated.

2.1 Policy-based filtering

In policy based filtering system users filtering ability is represented to filter wall messages according to filtering criteria of the user. Twitter is the best example for policy based filtering [1]. In that communication policy can be defines between two communicating parties.

III. PROPOSED SYSTEM

In this paper, Blacklist mechanism is used, where the user's list will be avoided for the moment to post on user wall. In this paper, all classification and filtering rules will be included, additionally BL rule is used. Based on the user wall and relationship, the owner of the wall can block the user. This prohibition can be approved for an

uncertain period of time. The technique which is used in this paper will be explained shortly, The techniques are,

2.1 Short Text Classifier:

Other classifier which is used in previous paper is used to classify the text which contain large amount of data, but it endure when the amount of document is limited. In particular, we base the overall short text classification strategy on Radial Basis Function Networks (RBFN) for their proven capabilities in acting as soft classifiers, in managing noisy data and intrinsically vague classes. Aim of the short text classifier is to identifying and eradicate the neutral sentences and categorize the non-neutral sentences in step by step, not in single step. This classifier will be implemented in hierarchical strategy. The first level task will be classified with neutral and non-neutral labels. The second level act as a non-neutral, it will develop gradual membership. This grades will be used as succeeding phases for filtering process. Short text classifier includes text representation, machine learning based classification.

IV. MATHEMATICAL MODEL

3.1 Filtering Rules:

1) Input:

Filtering Rules (FRs) can be modify by the user. User can have authority to decide what kind of contents should be blocked or displayed on his/her wall by using Filtering rules. For specification of a Filtering rules user profile as well as user social relationship will be considered.

FR= {Actor, UserSpec, ContentSpec} FR is dependent on following factors

- Author
- UserSpec
- ContentSpec
- Action

Author is a person who defines the rules.

 UserSpec denotes the set of OSN user.

ContentSpec is a Boolean expression defined on content.

2) Process:

FM= {UserSpec, ContentSpec==category (Violence,Vulgar,offensive,Hate,Sextual)}

- FM
- UserSpec
- ContentSpec

Here,

FM Block Messages in percentage.

UserSpec Denotes set of users.

ContentSpec Category of specified contents in message.

In processing, after giving input message, the system will compare the text with the different categories which are prevented. If messege found in that prevented type of category then message will display to the user that "can't send this type of messages.

Process denotes the action to be performed by the system on the messages matching Content- Spec and created by users identified by UserSpec.

3) Output PFM= {ContentSpec, M||Y}

• PFM Percentages of filtered message in a year or month. In general, more than a filtering rule can apply to the same user. A message is therefore published only if it is not blocked by any of the filtering rules that apply to the message creator.

3.2 Blacklists (BLs):

BLs are directly managed by the system, this should be able to determine who are the users to be inserted in the BL and decide when users' retention in the BL is finished. To enhance flexibility, such information is given to the system through a set of rules, hereafter called BL rules.

Blacklist Rules:

1) INPUT

INPUT = {Actor, UserSpec, UserBehavior} Where

- author is the OSN user who specifies the rule, i.e., the wall owner;
- UserSpec is a creator specification, specified according to Definition 1;
- UserBehavior consists of Message sending category of User.

2) Process:

BL= {UserSpec, ContentSpec, T}

- UserSpec
- ContentSpec
- T

UserSpec Creator Specification ContentSpec Message send by User.

T Messages is the total number of messages that each OSN user sent.

3) Output

BL= {UserSpec, ContentSpec, T>3, P}

- UserSpec

- ContentSpec
- T > 3

    UserSpec Creator Specification ContentSpec Message send by User. T Prevented Message count is greater than 3 times then Message creator will put into Black list automatically for specific time period P.

V. FILTERED WALL CONCEPTUAL ARCHITECTURE

The conceptual architecture of OSN services is a three-tier structure shown in following figure. The first layer is Social Network Manager (SNM), commonly aims to provide the basic OSN functionalities (i.e., profile and relationship management), however the second layer provides the support for external Social Network Applications (SNA).

The supported SNAs may in turn need an additional layer for their desired Graphical User Interfaces (GUIs). By considering this reference architecture, the proposed system is placed in the second and third layers. Users interact with the system by means of a GUI to set up and manage their FRs/BLs. Furthermore, the GUI provides users with a FW, that is, a wall where only messages that are authorized according to their FRs/BLs are published.
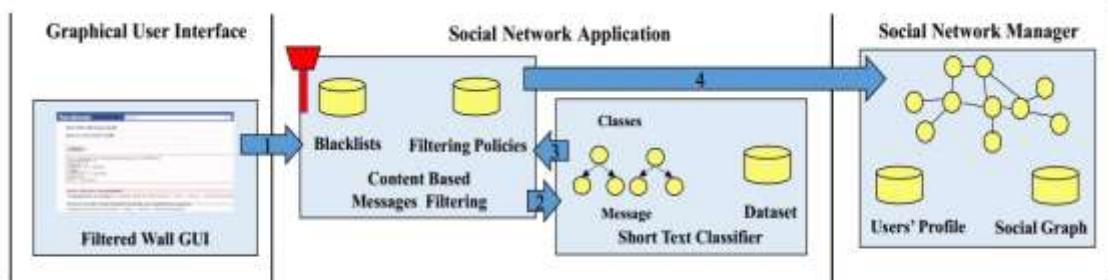

Fig 4.1: Filter Wall Architecture

The main components of the proposed system are the Content-Based Messages Filtering (CBMF) and the Short Text Classifier (STC) modules. STC goals to classify messages according to a set of categories.

5.1 Social Network Manager (SNM)

The initial layer is Social Network Manager Layer provides the essential OSN functionalities (i.e., profile and relationship administration).It also maintains all the data regarding to the user profile [2]. After maintaining and administrating all users data will provide for second layer for applying Filtering Rules (FR) and Black lists (BL).

5.2 Social Network Application (SNA)

In second layer Content Based Message Filtering (CMBF) and Short Text Classifier is composed. This is very important layer for the message categorization according to its CBMF filters. Also Black list is maintained for the user who sends frequently bad words in message.

5.3 Graphical User Interface (GUI)

Third layer provides Graphical User Interface to the user who wants to post his messages as an input. In this layer Filtering Rules (FR) are used to filter the undesired messages and allows Black list (BL) for the user who are temporally prevented to publish messages on user's wall.

VI. FUTURE SCOPE

Future scope of this system is that Image Filtering Techniques. In our system we are going to filter only the text messages. So Image filtering will be tried in   future system.

VII. CONCLUSIONS

In this paper, we have presented a system to filter undesired messages from OSN walls. The system exploits a ML soft classifier to enforce customizable content-dependent FRs. Furthermore, the flexibility of the system in terms of Filtering options is enhanced through the management of BLs.

The system developed GUI and a set of tools which make BLs and FRs specifications more simple and easy. Search tools may be capable to automatically recommend trusted value of the user. The primary work of this system is to find out trusted values used for OSN access control. In this system we will provide only essential set of functionalities which are available in current OSNs like Facebook, Twitter, etc. In existing OSNs have some difficulties in understanding to the average users regarding privacy settings. But this problem will be overcome in present OSNs system.

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