Secure Message Sharing in Online Social Network

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ABSTRACT: Online Social Networks (OSNs) are today one of the most popular interactive medium to communicate, share, and disseminate a considerable amount of human life information. Daily and continuous communications imply the exchange of several types of content, including free text, image, audio, and video data. One fundamental issue in today's Online Social Networks (OSNs) is to give users the ability to control the messages posted on their own private space to avoid that unwanted content is displayed. Up to now, OSNs provide little support to this requirement. To fill the gap, in this paper, we propose a system allowing OSN users to have a direct control on the messages posted on their walls. This is achieved through a flexible rule-based system that allows users to customize the filtering criteria to be applied to their walls, and a Machine Learning-based soft classifier automatically labelling messages in support of content-based filtering.

KEYWORDS Message filtering, blocking, online social networks.

I. INTRODUCTION

Social networking is the practice of expanding the number of one's business and/or social contacts by making connections through individuals, often through social media sites such as Face book, Twitter, LinkedIn and Google+. Based on the six degrees of separation concept (the idea that any two people on the planet could make contact through a chain of no more than five intermediaries), social networking establishes interconnected online communities (sometimes known as social graphs) that help people make contacts that would be good for them to know, but that they would be unlikely to have met otherwise. Depending on the social media platform, members may be able to contact any other member. In other cases, members can contact anyone they have a connection to, and subsequently anyone that contact has a connection to, and so on. Some services require members to have a preexisting connection to contact other members. While social networking has gone on almost as long as societies themselves have existed, the unparalleled potential of the Web to facilitate such connections has led to an exponential and ongoing expansion of that phenomenon. In addition to social media platforms, the capacity for social interaction and collaboration is increasingly built into business applications. The open-ended nature of social networks may only add to the confusion. Once signed in to a social network, having answered a few basic profile questions, it's easy to sit back and wonder what we are supposed to do next. Perhaps the easiest way to understand social networking is to think of it like high school. We had friends in school and we knew quite a few people even if we weren't friends with all of them, but it's likely that we didn't know everyone. If we ever moved to a new school — or if we can imagine moving to a new school — we start out with no friends. After attending classes, we start meeting people, and as we meet them, we begin associating with those that have similar interests. Getting started with social networking is much the same as starting at a new school. At first, we don't have any friends. But as we join groups, we begin to meet people, and we build a friend list of those with similar interests. Social networking is a nice form of entertainment, great for meeting people with similar interests and useful for staying in touch with old friends/acquaintances. It can also be a very effective promotional tool for businesses, entrepreneurs, writers, actors, musicians or artists. Most of us have hobbies, or things that we are keenly interested in such as books, television, video games or movies. Social networks allow us to reach out to others that have the same interests.

II. LITERATURE SURVEY

A) Title: Content-Based Book Recommending Using Learning for Text Categorization
Author: Raymond J. Mooney, Loriene Roy
Year: 1999
Description: Recommender systems improve access to relevant products and information by making personalized suggestions based on previous examples of a user's likes and dislikes. Most existing recommender systems use social filtering methods that base recommendations on other users' preferences. By contrast, content-based methods use information about an item itself to make suggestions. This approach has the advantage of being able to recommended previously unrated items to users with unique interests and to provide explanations for its recommendations. We describe a content-based book recommending system that utilizes information extractionand a machine-learning algorithm for text categorization. Initial experimental results demonstrate that this approach can produce accurate recommendations. These experiments are based on ratings from random samplings of items and we discuss problems with previous experiments that employ skewed samples of user-selected examples to evaluate performance.

B) Title: Content-based Filtering in On-line Social Networks
Author: M. Vanetti, E. Binaghi, B. Carminati, M. Carullo and E. Ferrari
Year: 2010
Description: This work is the first step of a wider project. The early encouraging results we have obtained on the classification procedure prompt us to continue with other work that will aim to improve the quality of classification. Additionally, we plan to enhance our filtering rule system, with a more sophisticated approach to manage those messages caught just for the tolerance and to decide when a user should be inserted into a BL. For instance, the system can automatically take a decision about the messages blocked because of the tolerance, on the basis of some statistical data (e.g., number of blocked messages from the same author, number of times the creator has been inserted in the BL) as well as data on creator profile (e.g., relationships with the wall owner, age, sex). Further, we plan to test the robustness of our system against different adversary models.

III.EXISTING SYSTEM

In the existing system the online social networks does not allows users to state who is allowed to insert messages in their walls. However, no content-based preferences are supported and therefore it is not possible to prevent undesired messages, such as political or vulgar ones.

EXISTING TECHNIQUE

- Inductive Learning Algorithms

TECHNIQUE DEFINITION

- Our Find Similar method is a variant of Rocchio's method for relevance feedback
- The decision trees were grown by recursive greedy splitting, and splits were chosen using
- The simplest linear form, an SVM is a hyper plane that separates a set of positive examples from a set of negative examples with maximum margin.

DISADVANTAGES

- It is machine based classifier used for this system.
- It have only the classifier so after compare to contents, message will display the public walls.
- Existing system does not give the control to what kind of messages post on their own wall.

IV.PROPOSED SYSTEM

In the proposed system the OSN users are allowed to have a direct control on the messages posted on their walls. This is achieved through a flexible rule-based system that allows users to customize the filtering criteria to be applied to their walls, and a Machine Learning-based classifier automatically labeling messages in support of content-based filtering. Information filtering can therefore be used to give users the ability to automatically control the messages written on their own walls, by filtering out unwanted messages.

PROPOSED TECHNIQUE

- Machine Learning (ML) text categorization techniques

TECHNIQUE DEFINITION

Text Representation:-we consider three types of features, Bow, Document properties and Contextual Features (CF). They are entirely derived from the information contained within the text of the message. They can register their e-mails to receive notices of future earthquake detection reports.

ADVANTAGES OF PROPOSED SYSTEM:

- ➤ Proposed system give the direct control to what kind of messages post on own wall.
- ➤ The system provides a powerful rule layer exploiting a flexible language to specify Filtering Rules.
- ➤ This mechanism avoids messages from undesired creators, independent from their contents.
- ➤ This scheme prevents posting of unwanted messages in the general walls of the user.
- ➤ The user will take the decision whether to post the comment or to reject/block the comment.
- ➤ The core components of the proposed system are the Content-Based Messages Filtering (CBMF) and the Short Text Classifier modules.

V.SYSTEM ARCHITECTURE

A system design or systems planning is the abstract model that defines the structure, activities, and more visions of a system. The OSN have three layers, there are graphical user interface, social network application and social network managers. The social network managers handle the basic functionalities like profile management, network based function etc. But in this project focused on other two layers and apply some new condition. Application layer have short text classifier and content based message filtering. Short text classifier classifying the messages based on the content. Content based message filter have black list and filtering policies. First, find relationship between the user and message senders and it will filter and calculate the probabilities using classifier. And the send an empty message below the probabilities result to the user. The main focus of the proposed system architecture is to provide a direct control on the messages posted on their walls. The proposed system architecture is shown in below figure.
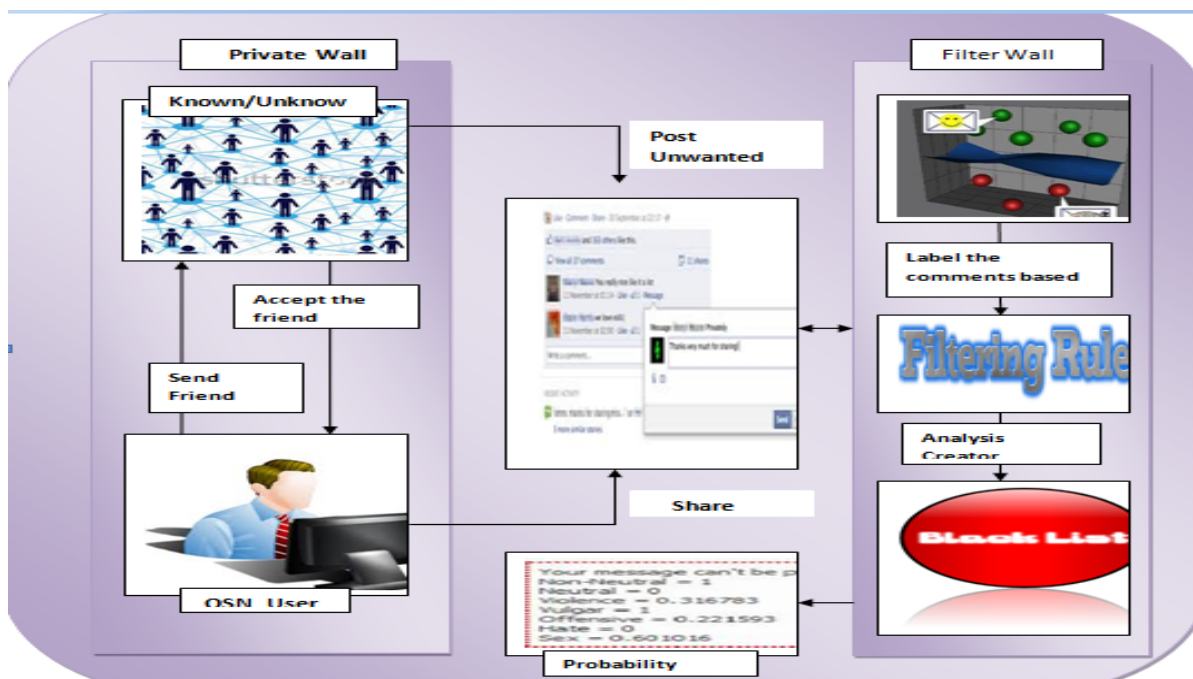

Fig 1. System Architecture Block Diagram

VI.FRAMEWORK

Modules used in this project:

A) AUTHENTICATION

If you are the new user going to consume the service then they have to register first by providing necessary details. After successful completion of sign up process, the user has to login into the application by providing username and exact password. The user has to provide exact username and password which was provided at the time of registration, if login success means it will take up to main page else it will remain in the login page itself..

B) PROFILE GENERATION

In this module user make our profile that details store in database the profile contains   name, contact no, and email address, photos, and other information. Logged users can see their details and if they wish to change any of their information they can edit it.

C) ACCEPT FRIEND REQUEST

In this module user add new friends and view our friends and details. Logged users can see their friend list and if they wish to add friends

D) SEND REQUEST

In this module user select friend to send request. Logged user view request accept our friend request.

E) POST MESSAGES

In this module user post any photo in public wall, any one post a comments for that photo. Unknown persons also post comments but we don't know the character about the member in case out of group.

F) BLOCK UNWANTED MESSAGE

In this module we have to calculate the probability of the message contents. That result will be display on the user private wall with two options like accept and reject.

VII.SYSTEM WORKING

MACHINE LEARNING (ML) TEXT CATEGORIZATION TECHNIQUES

Step 1: SHORT TEXT CLASSIFIER

A) TEXT REPRESENTATION

We consider three types of features, BoW, Document properties (Dp) and Contextual Features (CF). they are entirely derived from the information contained within the text of the message. Text representation using endogenous knowledge has a good general applicability; however, in operational settings, it is legitimate to use also exogenous knowledge, i.e., any source of information outside the message body but directly or indirectly related to the message itself.

B) MACHINE LEARNING-BASED CLASSIFICATION

We address short text categorization as a hierarchical two level classification process. The first-level classifier performs a binary hard categorization that labels messages as Neutral and Non-neutral. The first-level filtering task facilitates the

subsequent second-level task in which a finer-grained classification is performed. The second-level classifier performs a soft-partition of Non-neutral messages assigning a given message a gradual membership to each of the non-neutral classes.

C) RADIAL BASIS FUNCTION NETWORKS (RBFN)

RFBNs have a single hidden layer of processing units with local, restricted activation domain: a Gaussian function is commonly used, but any other locally tuneable function can be used. They were introduced as a neural network evolution of exact interpolation, and are demonstrated to have the universal approximation property.

STEP2: FILTERING RULES AND BLACKLIST MANAGEMENT

FILTERING RULES:

A) CREATOR SPECIFICATION

This implies to state conditions on type, depth, and trust values of the relationship(s) creators should be involved in order to apply them the specified rules. A creator specification creatorSpec implicitly denotes a set of OSN users.
A set of attribute constraints of the form an OP av,where an is a user profile attribute name, av and OP are, respectively, a profile attribute value and a comparison operator, compatible with an's domain.
A set of relationship constraints of the form (m, rt, minDepth, maxTrust) denoting all the OSN users participating with user m in a relationship of type rt, having a depth greater than or equal to minDepth, and a trust value less than or equal to maxTrust.

ii) Blacklists

A BL rule is a tuple (author, creatorSpec, creatorBehavior, T), where
- author is the OSN user who specifies the rule, i.e., the wall owner;
- creator Spec is a creator specification, specified.
- creatorBehavior consists of two components RFBlocked and minBanned.
- T denotes the time period the users identified by creatorSpec and creatorBehavior have to be banned from author wall.

VIII.CONCLUSION

We have presented system direct control to the user to block unwanted messages on their social network wall. The system using the machine language soft classifier to label the contents is Neutral and Non-neutral. And then applying the Filter Rule based on the creators. Moreover, the flexibility of the system in terms of filtering options is enhanced through the management of Blacklists.

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