



International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol.2, Special Issue 4, September 2014

An Efficient Rule Based System to Avoid Malicious Content from OSNs

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ABSTRACT: Now a day's users shown interest on online social networks to communicates and shares their information within their community with attractive design. But these Designs do not have ability to control the unwanted content displayed on their own user's walls. To overcome this problem we present message filtering & machine learning technique to customize the message with flexible rules to provide privacy.

KEYWORDS: Online social networks, Content based filtering, short text classifier, Black Lists

1. INTRODUCTION

Today Social Networks are part in advanced animation. The Social Network is a communication between people in which they create, share and interchange different types of data as text, sound, image and video information. In present system OSNs doesn't have filters to avoid undesirable messages on user's private space/user walls. For Example, Facebook is one of the most popular interactive media established in 2004 became the largest online social network in the world. It lets users to state who is permitted to place messages on their ramparts/walls those are friends, indirect friends and categorized group of friends. But filtering based on content is not held up and hence it is not attainable to avoid undesirable messages such as vulgar, violence, sex and political ones, no matter of the user who carries them. In present work we proposed Filtered Wall(FW) is an automated system to assess tentatively and Machine Learning (ML) technique to categorize text and it assign each short text word based on content to a set of categories automatically. The major intention is implementing a string Short Text Classifier (STC) is centered in the separation and picking of a set of discriminant features. We insert a two level hierarchical neural model distribution approach. In first level the short messages are classified as Neutral and Nonneutral messages by RBFN (Radial Basis Functional Networks), and in second level Nonneutral messages produce continuous assessment based on consider section. The system provides Filtering Rules (FRs) can support filtering principle that filters the irrelevant messages based on user demand and it also implement Black Lists (BLs) can block the undesirable messages posted on user's wall.

II. RELATED WORK

The survey is contrived among two different types of Filtering systems: social filtering and content-based systems. In social filtering system the documents are extracting and filtered based on reviews of the prior readers where as in content based system the content is extracted from the documents and then filtering will be done. The Content-based message filtering for Online Social Networks is implemented in this paper based on the Machine Learning Technique. In present work the resemblance with Policy-Based Personalization as well as Content-Based Filtering for Online Social Networks. The review of these methods

2.1 Content-Based Filtering

The Information Filtering systems are planned to categorize overflow of explosively produced data accelerated asynchronously by data producer and to satisfy his/her requirements those information is presented to the user. The Information Filtering and Information Retrieval are the roots for Content-Based filtering.

In Content-Based Filtering the information selects based on the creation between the user desires and content of the items. In Information Filtering e-mail was the original frontier of recent work, being papers have addressed

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varied frontiers including deep network resources, news wire composition, Internet news composition. Content-Based filtering is mainly classified as text categorization as it majorly precedes documents with text content.

According to Francesco, to evaluate a collection of documents and rendering of items using content-based filtering technique based on previously rated by a user, and then forms a profile of the user satisfaction. There are three steps based on consign process:

- Content reviewer: Defining the contents of the items is major responsibility of the process and feature extraction strategy selects the information or definite characteristics of the item.
- Profile learner: The user profile is constructed by the process, it will gather data model of the users desire and try to speculate data.
- Filtering elements: The user profile characteristics and item characteristics matched by the process

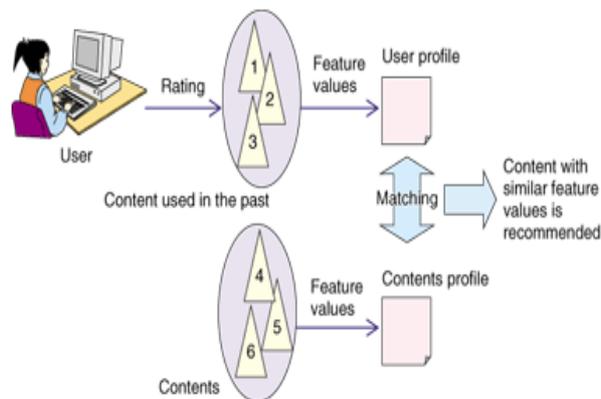


Fig1: Content-Based Filtering

2.2 Policy-Based personalization

In this personalization approach, a classification strategy has been implemented to classify short text messages to off tremendous users of personal blog services by raw data. The system focuses on Facebook and companion a set of categories with every message narrate its content then; the public friends can see only certain type of comments or messages based on their concern. In other way, Film Trust application is implemented by Golbeck and Kuter, it provide OSN trust to access personalized origin information and communication with users on website. Because in present system it doesn't provide any Filtering technique by which the user can't achieve filtering unwanted information from public. Our system is implemented Filtering Rules (FRs) and Black List (BL) mechanism to filter unwanted content from OSNs users' private space.

III. FILTERED WALL ARCHITECTURE

The Filtered wall Architecture is Three-tier architecture with base of Online Social Networks. In that first tier is called Social Network Manager (SNM) to afford basic functionalities of OSNs, second tier is Social Network Application (SNA) provides support for external applications and final tier is Graphical User Interfaces (GUI) provide support for social network application.

Social Network Manager (SNM):

The Social Network Manager layer contains user's profile and relationship graph and it provides the required functionalities of online social networks. SNM provides user information to the second tier for applying Black List (BL) mechanism and Filtering rules.

Social Network Application (SNA):

The Content Based Message Filtering (CBMF) and Short Text Classifier (STC) are implemented in second layer. CBMF contains filtering rules and black list technique to categorize the messages and Black List is to block the unwanted messages posted by the user.

Graphical User Interface (GUI):

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The messages posted by a user as input in GUI, Black Lists are used to prevent undesirable messages posted by users temporarily and before that the unwanted messages filtered by using Filtering Rules.

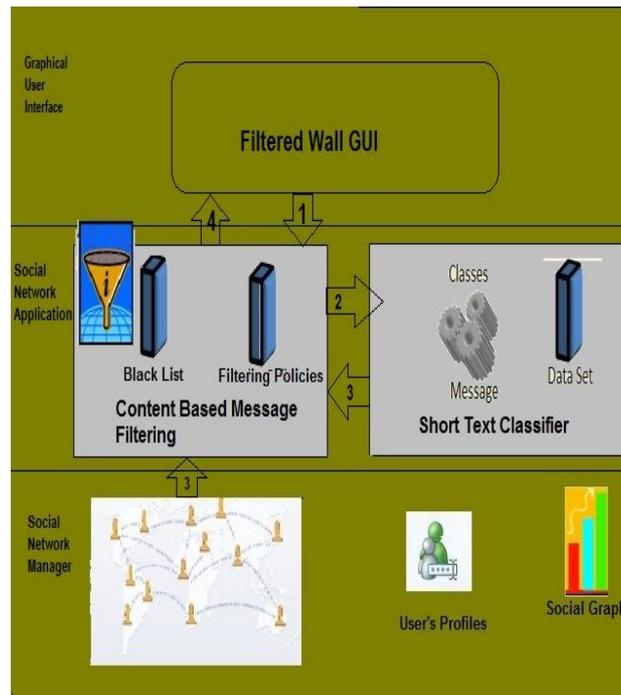


Fig 2: Filtered Wall Architecture

The message path is summarized as depicted in Fig2 as follows:

- The Filtered Wall intercepts the unwanted messages posted by user on user’s private space/wall.
- A ML based text classifier is to extract metadata from the content of the message.
- The Metadata and the data extracted from social graph and user’s profile used together by FW, to accomplish filtering rules and BL mechanism.

IV. SHORT TEXT CLASSIFIER

Existing widely used text classifiers works for the documents with large amount of data, it often fails when the text in documents is short. Short text classifiers are used to eliminate this problem. Machine learning strategy is used to categorize the text, it is aimed at eliminating neutral sentences and identifying and categorizing the non- neutral sentences in gradual manner rather than in single step process. Short text classifier will be used in hierarchical strategy. Neutral and Nonneutral labels are classified as hard under first level and non-neutral short texts produces appropriateness or “gradual membership” for the conceived classes is considered as soft under second level. Machine learning and text representation are included under Short text classifier.

4.1 Text Representation

The most appropriate feature set and feature representation for short text messages have not yet been sufficiently investigated. We consider three types of features Bag of words (Bow), Document properties (Dp) and Contextual Features (CF). The first two types of features, already used in, are endogenous. Text representation using endogenous knowledge has a good general applicability, though in operational settings it is appropriate to use also exogenous knowledge. We introduce contextual features (CF) modeling information that characterize the environment where the user is posting. These features play important role in deterministically understanding the semantics of the messages

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V. FILTERING RULES AND BLACK LIST MANAGEMENT

In this section, the Filtering Rules (FRs) and Black List (BL) management development techniques illustrated in brief. In this, the Social Network represented in form of graph where each network user as each node and edges are represented as relationship between users i.e. family, friends, parents or partner etc. To consider trustworthy by user, the social network is represented as in the form of graph.

5.1. Filtering Rules

The Filtering rules requirement is mainly deal with three issues. The first one is, the restraint is provided by FRs on message originator second is based on social network, and the trust value is considered and based on the message creator's relationship. By seeing all above constrains, the Creator Specification is summarized as follows:

RULE 1 (*creatorSpec*). A *CreatorSpec* is called as Creator Specification. It inevitably specifies a firm of OSN users. The creator specification defined as

1. '*OP an av*' are represented as firm of attribute constraint where '*an*' is attribute name for user profile, '*OP*' is comparison operator and '*av*' is attribute profile.

2. The depth, trust value and relationship of OSN users represented in form (*minDepth, MaxTrust, rt, m*)

RULE 2 (*Filtering Rule*) A *Filtering Rule* is a tuple (*action, author, contentSpec, CreatorSpec*)

5.2 Black List

The second implementation is Black List technique to avoid malicious content from undesired users. Some Black List rules are implemented to avoid such type of information related to FRs, the specified content is filtered by owner of the user.

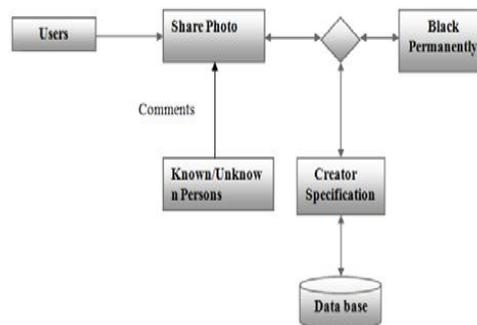


Fig 3: Blacklist System

Rule 3 (BL Rule) Black List Rule is a tuple (*author, creatorSpec, creatorBehaviour, T*) Here, the rule is defined by OSN user i.e. author, creatorBehaviour is to Know the behavior of the message creator either to post or block message and T denotes time period the user to be banned from the wall by author.

VI. CONCLUSION

In this paper, we proposed a system to filter unwanted content from OSN user walls. The filtered wall architecture is implemented to filter undesirable messages by using different filtering rules and Black List mechanism to control the malicious content on OSN private space. In present system it becomes easier to provide Filtering Rules and Black List (BLs) technique by implementing Graphical User Interface. The future survey is the filtering system has to improve with extreme rules.

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ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol.2, Special Issue 4, September 2014

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