

International Journal of Computer Science and Mobile Computing



A Monthly Journal of Computer Science and Information Technology

ISSN 2320-088X

IJCSMC, Vol. 3, Issue. 10, October 2014, pg.836 – 839

REVIEW ARTICLE

A Review on Novel Technique to Filter Unwanted Messages from OSN

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Abstract— Internet has a big influence in the life of the people in positive way. The usage of internet has increased enormously. In current years Online Social Networks also developed and plays an equivalent role. Online social networks are ideal for exchanging ideas, views and public opinion. Hence Online Social Networks should be highly secure and should protect the individual's privacy. The Online Social Network provides the security measures but they were limited. During Socialization the user can access the profile of other members involved in social sites and even share data such as text, images etc. One crucial issue in user wall is to give users the ability to control the messages posted on their own confidential space in order to avoid unwanted content to be displayed. In this paper, we review filtering methods by using machine learning technique to filter the unwanted messages on the user walls.

Keywords— Internet, filtering, online social network, security, socialization

I. Introduction

Social networking sites are a part of everyday life and they have brought innovative changes in communication between people. These sites provide dissimilar resources such as email and instant messages at one place. Various type of data can be shared such as pictures, music, video etc., through the social networking sites. Social network allows user to connect to a range of other pages on the network, including some use full sites like business, education, online shopping, marketing, e-commerce. Availability of these resources makes the communication easy and faster. Social networking sites help in originating connection with people, friends and relatives. Those People having different professions can make groups like students, writers, doctors, lawyers, social workers, etc.

An online social networking site is a platform to frame social networks between people who share interests, activities or real-life connections. An online social networking site consists of a profile of each user, social links of the user, and a variation of supplementary services. Online Social networks are web-based services which allow individuals to create a public profile, to create a list of users with whom they can share relations and view the connections in the system.

An Information filtering is a structure that removes repetitive or unwanted data from huge collection of information using semi automated methods before the presentation of a human user. In order to perform this, the user's profile is compared to some associating characteristics. Information filtering is used here to manage the bulky data from the online social networks. Today online social network provide limited support to avoid unwanted messages on user walls. For example, Facebook allows users to manage which user is allowed to insert messages in their walls on the basis of relationship based filtering (i.e., friends, friends of friends, or defined groups of friends). However, content-based techniques are not used and therefore it is not possible to avoid undesired messages, such as political ones, without considering the user who posts them. Content based filtering is suitable for the short texts that occur in messages.

In this paper, our main aim is to analyze the classification technique and to study the design of system to filter the undesirable messages from OSN user wall. The aim of the current work is to recommend and experimentally estimate an automated system which is known as Filtered Wall (FW) that should be able to filter unwanted messages from OSN user walls. Machine Learning (ML) text categorization techniques are developed to automatically assign with each short text message based on its content by a set of categories.

In addition, the system will use a flexible language to indicate the filtering rules (FRs), with the help of it the users can decide what contents should be displayed on their walls. The FRs can be personalized according to the users need. Along with it there is user defined blacklists (BLs) which will temporary prevent users to post any type of message on user walls.

Section 2 describes the existing techniques for filtering the unwanted data such as content based filtering, collaborative filtering and policy based personalization filtering and section 3 presents the conclusion.

II. EXISTING TECHNIQUES

The work has relevance with both the content-based filtering, as well as with the policy-based personalization for online social network and web contents. Therefore, we survey the literature in both these areas. Distinction is done between these two types of text filtering systems.

A. Content based filtering

Content based filtering, also known as cognitive filtering, recommends items for a user based on the description of previously evaluated items and information available from the content. The content of each item is represented as a set of descriptors or terms, typically the words that occur in a document. a content-based filtering system selects information items based on the correlation between the content of the items and the user preferences as opposed to a collaborative filtering system that chooses items based on the correlation between people with similar preferences [1]. Selection of item is based on user interest.

The recommended systems previously use social filtering methods that consider recommendations on other users choice. On the contrary R. J. Mooney et.al describes a content-based book recommending system that takes advantage of machine-learning algorithm for text categorization and information mining. Thus, improve access to relevant information [3].

In the content based filtering, the systems is capable of learning from user's actions related to a particular content and use them for other content types which is the main advantage. Filtering concept is enforced to the Online Social Network user wall using rule based text categorization technique. The latest experiments emphasize complexities, efficiently as short text is brief, with a variety of misspellings, nonstandard conditions, and noise. Zelikovitz et.al tried to improve the classification of short text strings by developing a semi-supervised learning policy based on a combination of labelled training data and a secondary amount of unlabeled but related longer essays.[2] This declaration is inappropriate in our field in which short text messages are not part of long semantically associated documents. A different approach is intended by Bobicev et.al by adopting a statistical learning method that can perform well by avoiding the problem of error-prone quality construction [2]. This technique, named Prediction by Partial Mapping, generates a language model that is used in probabilistic text classifiers which are hard classifiers in nature and do not easily integrate soft, multi-membership paradigms.

B. Collaborative filtering

Danyel Fisher et.al presented a framework based on java, SWAMI (Shared Wisdom through the Amalgamation of Many Interpretations) for studying and structuring collaborative filtering systems. It consists of three components: a prediction engine, an evaluation system, and a visualization component. They verified comparison of three prediction algorithms: a traditional Pearson correlation-based method, support vector machines, and a new precise and scalable correlation-based method based on clustering technique. It was demonstrated that new pearson clustered correlation predictor go with current state of art methods, with benefit of scalable performance.[4]

C. Policy based personalization filtering

Policy based personalization has been useful in various Context. It acclimatizes a service in particular context as per the user defined policies.

In Twitter, communication policy can be defined between two communicating parties. It allocates a category to each tweet and exhibit only those tweet which are of concern to the user. In this situation, policy based personalization signify the ability of the user to filter out messages on wall according to filtering criteria specified by user. In contrast, Golbeck et.al proposes an application, named FilmTrust, which make use of OSN trust relationship and derivation information to personalize access to website. Though these types of system does not provide a policy layer for filtering by which the user can exploit the result of the classification to decide to which extent the unwanted information is filtered out. In contrast, filtering policy language allocate the setting of FRs according to different criteria, which will consider the relationships of the wall owner with other OSN users as well as information on the user profile and output or results of the classification process. Furthermore, our system is accompanied by a flexible mechanism for BL management which provides opportunity of customization to the filtering process [10].

The work by Boykin et.al that presented an automated anti-spam tool that can recognize unsolicited e-mail, spam and messages related with known people of user. However, the strategy stated does not make use of ML content-based techniques [11].

Foltz et.al researched tested methods for predicting which Technical Memos (TMs) best match people's technical interests. This was totally based on previous feedback. There was no individual filtering. This paper has addressed diversified domains including newswire articles, Internet "news" articles, and broader network sources. This paper focused on just prioritizing information by using rating values [12].

D. Text representation

S. Dumais et.al evaluate the efficacy of five different automatic learning algorithms for text categorization in terms of learning speed, real-time classification speed, and classification accuracy and they came up with the conclusion that Linear Support Vector Machines (SVMs) are most accurate classifier, fastest to train, and quick to evaluate. They used SVMs for categorizing Web pages and email messages .They wish to extend their work by including the extra structural information about documents, as well as knowledge-based features for classification accuracy and automatically categorize items into hierarchical grouping structures [5].

The mostly used text representation techniques for text retrieval are clustering and indexing. D. D. Lewis calculated the properties of phrasal and clustered indexing, to separate from query interpretation issues. He worked on same number of features for each category and there was no automated feature selection [6].

R. E. Schapire et.al depict an implementation, called BoosTexter, the new boosting algorithms for text categorization and also compare its performance with a a range of other text-categorization algorithms on a different tasks.[7]. Neural network allows us to model higher order interface between document terms and simultaneously predict multiple topics using shared hidden futures. E. D. Wiener et.al presents an application of nonlinear neural network on topic spotting. While topic spotting is the problem of identifying which set of predefined topics are present in a natural language document [8].

Sarah Zelikovitz et.al illustrate a method for improving the categorization of short text strings by using a combination of labelled and unlabeled longer documents which are related [9].

The merely social networking service present for providing filtering abilities to its users is MyWOT social networking service which gives its users the ability to: 1) rate resources on basis of four criteria: truthfulness, trader or vendor reliability, privacy, and safety of child 2) state preferences determining whether the browser should block access to specified resource, or should simply give a warning message according to the specified rating. Though there are some similarities, the method adopted by MyWOT is different from ours. It supports filtering criteria which are less flexible than those of Filtered Wall as they are only based on four criteria mentioned above. Furthermore, no automatic filtering method is provided to the end user [1].

III. CONCLUSION

Thus in this review paper we explain various procedures to filter unwanted messages in online social network. Additionally we studied different text categorization techniques enhanced with the filtering. The system proposed in this paper represents just the core set of functionalities needed to provide a proper tool for OSN message filtering. The system exploits a ML soft classifier to practice customizable content-dependent FRs. Furthermore, the flexibility of the system in terms of filtering options is enhanced through the management of BLs.

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