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# A Computerized Neural Network System to Filter Unwanted Messages from OSN User Walls

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#### Abstract:

Unwanted Messages which are sending and received on the user private space are filtered by allowing OSN users to have a direct control on the messages posted on their walls through Filtering Rules and Context Based Filtering Mechanism. There is no content-based preferences are supported and therefore it is not possible to prevent unwanted messages, such as political or vulgar ones, no matter of the user who posts them. Providing this service is not only a matter of using previously defined web content mining techniques for a different application, rather it requires to design ad hoc classification strategies. This is because wall messages are constituted by short text for which traditional classification methods have serious limitations since short texts do not provide sufficient word occurrences. One fundamental issue in this system is blocking of user for lifetime. We overcome this Problem by using Proposed System; In this paper, we propose a system that performs blocking of user for particular time limit and also send notification, E-Mail to that who has posted unwanted message on wall. Along with that we are using Self Organizing Neural Network (SOINN) with Redial Based Function (RBF) for classification of text. In this we use the back propagation technique of neural network (i. e. Using previous knowledge of user messages we take proper action).

*Index Terms:* Online social networks; Filtered Wall; Blacklists; Machine Learning text categorization Soft Classifier

# **1. INTRODUCTION**

On-line Social Networks (OSNs) are platforms that people to publish allow information about them and to connect to other users of the network through links. Now days, OSNs the popularity of is increasing significantly. Twitter, Facebook, LinkedIn have more than a hundred million active users. The existence of OSNs that include person- specific information creates both interesting opportunities and challenges. For example, data available on social network is useful for marketing products to the right customers. At the same time, security and privacy needs to be concerned. Improving the OSN access control systems appears as the first step toward addressing the existing security and privacy concerns related to online social networks

To address some of these limitations, we propose an extensible, fine-grained OSN access control model based on semantic web technologies. Our main idea is to encode social network-related information by means of ontology. Web-based Social Networks (WBSNs) are online communities that allow users to publish resources and to record and/or establish



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relationships with other users, such as friend, colleague, etc. for the purpose of business, entertainment, religion, etc. An increasing number of social networking and social media sites allow users to customize their own privacy policies. For example, Facebook has a Privacy Settings page, which allows users to specify which pieces of profile data each friend is allowed to view. Facebook also allows users to create friends list, and then specify whether a piece of profile data is visible or invisible to all friends in a particular list.

In the last years, On-line Social Networks (OSNs) have become a popular interactive medium to communicate, share and disseminate a considerable amount of human life information. Daily and continuous communication results in exchange of several types of content, including free text, image, and audio and video data. The huge and dynamic character of these data creates the need of web content mining strategies aimed to automatically discover useful information from the large amount of data and then provide an active support in complex and sophisticated tasks involved in social networking analysis and management. In OSNs, information filtering can be used for a different, purpose. This is due to the fact that in OSNs there is the possibility of posting or commenting other posts on particular public/private areas, called in general walls. The aim of the present work is therefore to propose and experimentally evaluate an automated system, called Filtered Wall (FW), able to filter unwanted messages from OSN user walls. We exploit Machine Learning (ML) text categorization techniques to automatically assign with each short text message a set of categories based on its content.

# 2. RELATED WORK

The original set of features, derived from endogenous properties of short texts, is enlarged here

including exogenous knowledge related to the context from which the messages originate. As

far as the learning model is concerned, we confirm in the current paper the use of neural learning which is today recognized as one of the most efficient solutions in text classification. 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. Moreover, the speed 2 in performing the learning phase creates the premise for an adequate use in OSN domains, as well as facilitates the experimental evaluation tasks .The first proposal of a system to automatically filter unwanted messages from OSN user walls on the basis of both message content and the message creator relationships and characteristics. The current paper substantially extends for what concerns both the rule layer and the classification module. Major differences include, a different semantics for filtering rules to better fit the considered domain, an online setup assistant (OSA) to help users in FR specification, the extension of the set of features considered in the classification process, a more deep performance evaluation study and an update of the prototype implementation to reflect the changes made to the classification techniques.

Our focus in this work is on online identification of real-world event content. We identify each event and its associated Twitter messages using an online clustering technique that groups together topically similar tweets. We then compute revealing features for each cluster to help determine which clusters correspond to events. Importantly, we design features to distinguish between real-world events and a special family of non-events, namely, Twittercentric or trending topics that carry little meaning outside the Twitter system. These Twitter-centric share similar activities often temporal distribution characteristics with real-world events, as discussed below. We also distinguish (p-political. between PESTEL tweets e-



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economical, s-social, t-technical, eenvironmental, and l-legal).

In these systems blocking of user is for lifetime. We overcome this Problem by using Proposed System. In our system we plan to block the user for particular time limit and also send notification, E-Mail sending to that who posted on wall. The application of content-based filtering on messages posted on OSN user walls poses further challenges given the short length of those messages apart from the wide range of topics that may be mentioned. Short text classification has received up to currently little attention within the scientific community. Recent work highlights difficulties in shaping robust options, basically as a result of the very fact that the description of the short text is crisp, with several misspellings, nonstandard terms, and noise. Our work is additionally galvanized by the management models various access and connected policy languages and social control mechanisms that are projected to date for OSNs since filtering shares many similarities with access management.

# 3. IMPLEMENTATION ARCHITECTURE:

The Filtered wall architecture in support of OSN services is a three-tier structure (see Fig. 1). The first layer, called Social Network Manager (SNM), it provides the basic OSN functionalities (i.e., profile and relationship management), whereas the second layer provides the support for external Social Network Applications (SNAs). The supported SNAs may in turn require an additional layer for their needed Graphical User Interfaces (GUIs). According to this reference architecture, the proposed system is placed in the second and third layers. In particular, users interact with the system by means of a GUI to set up and manage their FRs/ BLs. Moreover, the GUI provides users with a FW, that is, a wall where only messages that are authorized according to their FRs/BLs are published.

The major efforts in constructing a robust and flexible short text classifier (STC) are concentrated in the extraction and selection of a set of characterizing and discriminant features. The solutions investigated in this paper are an extension of those adopted in a previous work by us from which we inherit the learning model and elicitation procedure for generating the preclassified data. The original set of features. derived from endogenous properties of short texts, is enlarged here including exogenous knowledge related to the context from which the messages originate. As far as the learning model is concerned, we confirm in the current paper the use of neural learning which is today recognized as one of the most efficient solutions in text classification. In particular, we base the overall short text classification strategy on Radial Basis Function Networks (RBFN) with Self Organizing Neural Network (SOINN) for their proven capabilities in acting as soft classifiers, in managing noisy data and intrinsically vague classes. Moreover, the speed in performing the learning phase creates the premise for an adequate use in OSN domains, as well as facilitates the experimental evaluation tasks.



Fig.1 Architecture of Filtered Wall

We insert the neural model within a hierarchical two level classification strategy. In the first level, the RBFN with Self Organizing Neural Network (SOINN) categorizes short messages as Neutral and Nonneutral; in the second stage, Nonneutral messages are classified producing gradual estimates of appropriateness



to each of the considered category. Besides classification facilities, the system provides a powerful rule layer exploiting a flexible language to specify Filtering Rules (FRs), by which users can state what contents, should not be displayed on their walls. FRs can support a variety of different filtering criteria that can be combined and customized according to the user needs. More precisely, FRs exploit user profiles, user relationships as well as the output of the ML categorization process to state the filtering criteria to be enforced. If the friend of user continuously posts the unwanted messages of particular type on users wall then user will send the notification message to that user who posted on wall. In addition, the system provides the support for user-defined Blacklists (BLs), that is, list of users that are temporarily prevented to post any kind of messages on a user wall.

A hierarchical two level classification process is used for short text categorization. The first-level classifier performs a binary hard categorization that labels messages as Neutral and Nonneutral. After first-level filtering task there is subsequent second-level task in which a fine-grained classification is performed. The second-level classifier performs а soft classification of Nonneutral messages assigning a given message a gradual membership to each of the Nonneutral classes. Among the variety of multiclass ML models well suited for text classification, we choose the RBFN model with Self Organizing Neural Network (SOINN) for the experimented competitive behaviour with respect to other state-of-the-art classifiers. RFBNs have a single hidden layer of processing units with local, restricted activation domain: a Gaussian function is commonly used, but any other locally tunable function can be used. They were introduced as a neural network evolution of exact interpolation, and are demonstrated to have the universal approximation property. As outlined RBFN main advantages are that classification function is nonlinear, the model may produce confidence values and it may be

robust to outliers; drawbacks are the potential sensitivity to input parameters, and potential overtraining sensitivity.

The first-level classifier is then structured as a regular RBFN with Self Organizing Neural Network (SOINN). In the second level of the classification stage, we introduce a modification of the standard use of RBFN with Self Organizing Neural Network (SOINN). Its regular use in classification includes a hard decision on the output values: according to the winner-takeall rule, a given input pattern is assigned with the class corresponding to the winner output neuron which has the highest value. In our approach, we consider all values of the output neurons as a result of the classification task and we interpret them as gradual estimation of multimember ship to classes.

# 4. CONCLUSION

The system developed GUI and a set of tools which make BLs and FRs specifications more simple and easy. Investigation tools may be able to automatically recommend trust value of the user. The primary work of this system is to find out trust values used for OSN access control.In this paper, we have presented Filtered Wall. The system exploits a ML soft classifier to enforce customizable content-dependent filtering rules. The flexibility of the system in terms of filtering options is enhanced through the management of BLs. System proposed in this paper represents just the core set of functionalities needed to provide a sophisticated tool for OSN message filtering with temporary blocking of user and also send notification, E-Mail to that who has posted unwanted message on wall. This might enhance services provided by OSN. BL and FR specification are made easier by development of GUI and a set of related tools. Along with it, our proposed system provides a better accuracy for classification of message as compare to previous implemented methods. The miss-classification of message is reduced by using RBF with NN.



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