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Minimization Influence of Rumor Detection In Social Network

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ABSTRACT: The soaring development of large scale online social networks, online information sharing is becoming ubiquitous everyday. Various information is propagating through online social networks including both the positive and negative. It focus on the negative information problems such as the online rumors. Rumor blocking is a serious problem in large-scale social networks. Malicious rumors could cause chaos in society and hence need to be blocked as soon as possible after being detected. In this, propose a model of dynamic rumor influence minimization with user experience (DRIMUX). Our goal is to minimize the influence of the rumor (i.e., the number of users that have accepted and sent the rumor) by blocking a certain subset of nodes. A dynamic Ising propagation model considering both the global popularity and individual attraction of the rumor is presented based on realistic scenario. In addition, different from existing problems of influence minimization, we take into account the constraint of user experience utility. Specifically, each node is assigned a tolerance time threshold. If the blocking time of each user exceeds that threshold, the utility of the network will decrease. Under this constraint, we then formulate the problem as a network inference problem with survival theory, and propose solutions based on maximum likelihood principle. Experiments are implemented based on large-scale real world networks and validate the effectiveness of our method.

KEYWORDS : Ubiquitous, Dynamic, rumor influence, Treshold, Isingpropogation, Malicious rumors.

I. INTRODUCTION

Network computer devices that originate, route and terminate the data are called network nodes. Nodes can include hosts such as personal computers, phones, servers as well as networking hardware. Two such devices can be said to be networked together when one device is able to exchange information with the other device, whether or not they have a direct connection to each other. In most cases, application-specific communications protocols are layered (i.e. carried as payload) over other more general communications protocols. This formidable collection of information technology requires skilled network management to keep it all running reliably. With the soaring development and rising popularity of large-scale social networks such as Twitter, Facebook, and Chinese SinaWeibo, etc., hundreds of millions of people are able to become friends [2] and share all kinds of information with each other. Online social network analysis has also attracted growing interest among researchers [3], [4],[5], [6]. On one hand, these online social platforms provide great convenience to the diffusion of positive information such as new ideas, innovations, and hot topics [7], [8]. On the other hand, however, they may become a channel for the spreading of malicious rumors or misinformation [9], [10],[11]. For example, some people may post on social networks a rumor about an upcoming earthquake, which will cause chaos among the crowd and hence may hinder the normal public order. In this case, it is necessary to detect the rumor source and delete related messages, which may be enough to prevent the rumor from further spreading. However, in certain extreme circumstances such as terrorist online attack, it might be necessary to disable or block related Social Network (SN) accounts to avoid serious negative influences. For instance, in 2016, the families of three out of the forty nine victims from the Orlandonightclub shooting incident filed a lawsuit against Twitter, Facebook and Google for providing “material support” to the terrorism organization of the Islamic State of Iraq and Syria (ISIS) [12]. THESE companies then took measures to block related accounts, delete

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relevant posts and fanpages on their social network platforms to prevent the ISIS from spreading malicious information. Additionally, Facebook et al. also have issued relevant security policies and standards to claim the authority to block accounts of users when they are against rules or at risk [13]. Undoubtedly, malicious rumors should be stopped as soon as possible once detected so that their negative influence can be minimized. Most of the previous works studied the problem of maximizing the influence of positive information through social networks [14], [15], [16]. Fast approximation methods were also proposed to influence maximization problem [17], [18]. In contrast, the negative influence minimization problem has gained much less attention, but still there have been consistent efforts on designing effective strategies for blocking malicious rumors and minimizing the negative influence.

II. LITERATURE SURVEY

In 2013 Kwon, S., Cha, K., Jung, W.C., and Wang, Y. had published Aspects of Rumor Spreading on a Micro blog Network Rumors have been studied for several decades in social and psychological fields, where most studies were theory-driven and relied on surveys due to difficulties in gathering data. Rumor research is now gaining new perspectives, because online social media enable researchers to examine closely various kinds of information dissemination on the Internet. In this paper, we review social psychology literature on rumors and try to identify the key differences in the dissemination of rumors and non-rumors. The insights from this study can shed light on improving automatic classification of rumors and better comprehending Rumor theories in online social media.

In 2013 Kwon, S., Cha, K., Jung, W.C., and Wang, Y. had published Prominent Features of Rumor Propagation in Online Social Media The problem of identifying rumors is of practical importance especially in online social networks, since information can diffuse more rapidly and widely than the offline counterpart. In this paper, we identify characteristics of rumors by examining the following three aspects of diffusion: temporal, structural, and linguistic. For the temporal characteristics, we propose a new periodic time series model that considers daily and external shock cycles, where the model demonstrates that rumor likely have fluctuations over time. We also identify key structural and linguistic differences in the spread of rumors and non-rumors. Our selected features classify rumors with high precision and recall in the range of 87% to 92%, that is higher than other states of the arts on rumor classification.

In 2011 Oazvinian, V.B. Rosengren, E., and Radev, R had published Rumor has it: Identifying Misinformation in Micro blogs A rumor is commonly defined as a statement whose true value is unverifiable. Rumors may spread misinformation (false information) or disinformation (deliberately false information) on a network of people. Identifying rumors is crucial in online social media where large amounts of information are easily spread across a large network by sources with unverified authority. In this paper, we address the problem of rumor detection in micro blogs and explore the effectiveness of 3 categories of features: content-based, network-based, and micro blog-specific memes for correctly identifying rumors. Moreover, we show how these features are also effective in identifying dis informers, users who endorse a rumor and further help it to spread. We perform our experiments on more than 10,000 manually annotated tweets collected from Twitter and show how our retrieval model achieves more than 0.95 in Mean Average Precision (MAP). Finally, we believe that our dataset is the first large-scale dataset on rumor detection. It can open new dimensions in analyzing online misinformation and other aspects of micro blog conversations.

In 2011, Castillo, C., Mendoza, M., and Poblete, P had published a "Information Credibility on Twitter" We analyze the information credibility of news propagated through Twitter, a popular micro blogging service. Previous research has shown that most of the messages posted on Twitter are truthful, but the service is also used to spread misinformation and false rumors, often unintentionally. On this paper we focus on automatic methods for assessing the credibility of a given set of tweets. Specifically, we analyze micro blog postings related to "trending" topics, and classify them as credible or not credible, based on features extracted from them. We use features from users' posting and re-posting ("re-tweeting") behavior, from the text of the posts, and from citations to external sources. We evaluate our methods using a significant number of human assessments about the credibility of items on a recent sample of

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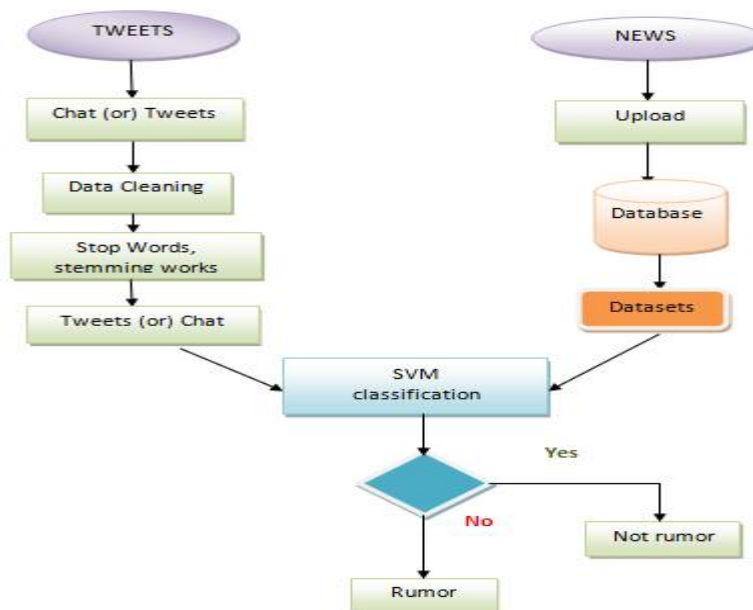
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Twitter postings. Our results shows that there are measurable differences in the way messages propagate, that can be used to classify them automatically as credible or not credible, with precision and recall in the range of 70% to 80%.

In 2010 Mendoza, M., Poblete, B, and Castillo, C. had published a “Twitter Under Crisis: Can we Trust what we RT?” In this article we explore the behavior of Twitter users under an emergency situation. In particular, we analyze the activity related to the 2010 earthquake in Chile and characterize Twitter in the hours and days following this disaster. Furthermore, we perform a preliminary study of certain social phenomenon’s, such as the dissemination of false rumors and confirmed news. We analyze how this information propagated through the Twitter network, with the purpose of assessing the reliability of Twitter as an information source under extreme circumstances. Our analysis shows that the propagation of tweets that correspond to rumors differs from tweets that spread news because rumors tend to be questioned more than news by the Twitter community. This result shows that it is possible to detect rumors by using aggregate analysis on tweets.

III. SYSTEM DESIGN

We propose a general framework, which given a tweet predicts (1) whether it is related to a „claimed“ rumor, and if so (2) whether the user believes it or not, by comparing the tweets message with a news article which is scraped from a reliable news website. We categorized two methods for the purpose of detecting rumored data before it starts to diffuse to a large community. The feature-based approach returns quantitative results which are not based on the language or tone of tweet message. The linguistic approach, which we have decided to use in our work, returns qualitative results after processing the language and the content of the message of the tweet and categorizing the words in positive and negative models based on whether the word or gestures (hash tags, emoticons expression, and URL content) are denying the rumor or endorsing it. We group all the tweets belonging to a single topic as an input and collectively measure the score of sentiment (e.g., anger, sad) and linguistic (e.g., negate) categories. We build a model for three-way classification task of classifying sentiment into positive, negative and neutral. Our detection approach is based on RKB which is a repository of tweets related to different rumor topics. We have decided not to clean the data during preprocessing because (1) punctuation marks tell if the rumor is questioned or if the user is surprised to read such a rumor (2) capitalization is necessary as it shows the impact of the rumor on the user. (3) We do not want all the stop words to be removed because words like “can”, “how”, etc. are important to analyze the opinion of the user.



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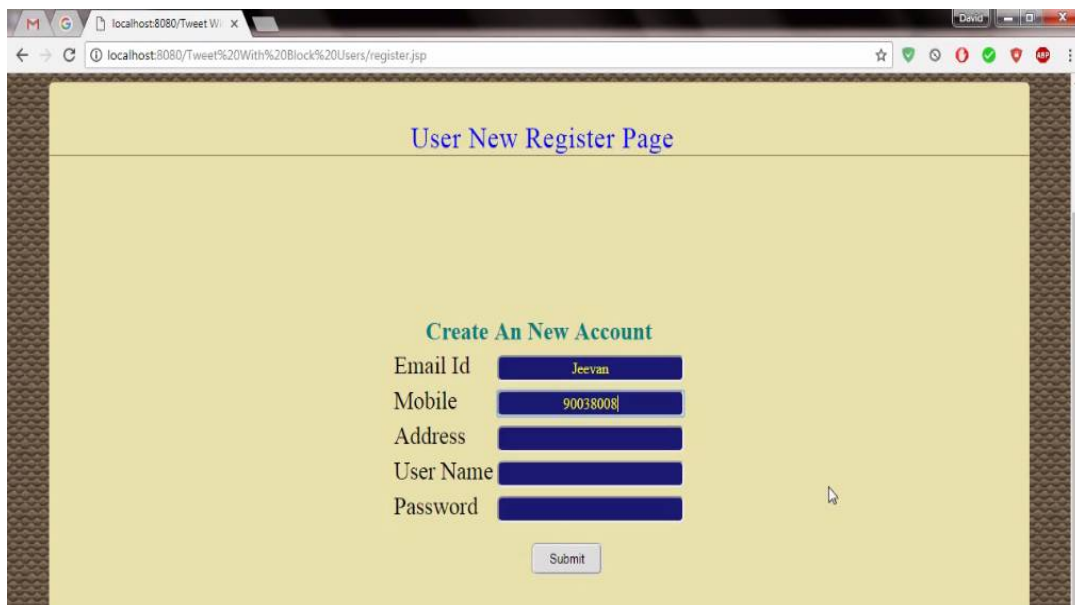
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IV. PROPOSED SYSTEM

We analyze the DRIMUX optimization problem from the perspective of a network inference problem with survival theory and then propose the Support Vector Machine Algorithm and Stop words and Stemming Techniques based on different nodes. Support Vector Machine-It is used to detect the negative information problems such as the online rumours by blocking a certain subset of nodes. We take into the account the constraint of user experience utility. In our rumor blocking strategies, we consider the influence of blocking time to user experience in real world social networks. Thus we propose a blocking time constraint into the traditional rumor influence minimization objective function. In that case, our method optimizes the rumor blocking strategy without sacrificing the online user experience. Support vector machine (SVM) is a non-linear classifier which is often reported as producing superior classification results compared to other methods. The idea behind the method is to non-linearly map the input data to some high dimensional space, where the data can be linearly separated, thus providing great classification (or regression) performance. One of the bottlenecks of the SVM is the large number of support vectors used from the training set to perform classification (regression) tasks. Stop words and Stemming Technique-In computing, stop words are words which are filtered out before or after processing of natural language data. Stemming is the process of reducing inflected (or sometimes derived) words to their word stem, base or root form generally a written word form.

V. RESULT



The screenshot shows a web browser window with the address bar displaying 'localhost:8080/TweetWith%20Block%20Users/register.jsp'. The page content is titled 'User New Register Page' and features a 'Create An New Account' section. This section contains five input fields: 'Email Id' with the value 'Jeevan', 'Mobile' with the value '90038008', 'Address', 'User Name', and 'Password'. A 'Submit' button is located at the bottom of the form.

fig.1.user registration

In fig.1 to create a new account for the authentication purpose ,user need to fill the all the credentials.whereEmailId must be unique.After filling ,the corresponding details will be stored in the database.

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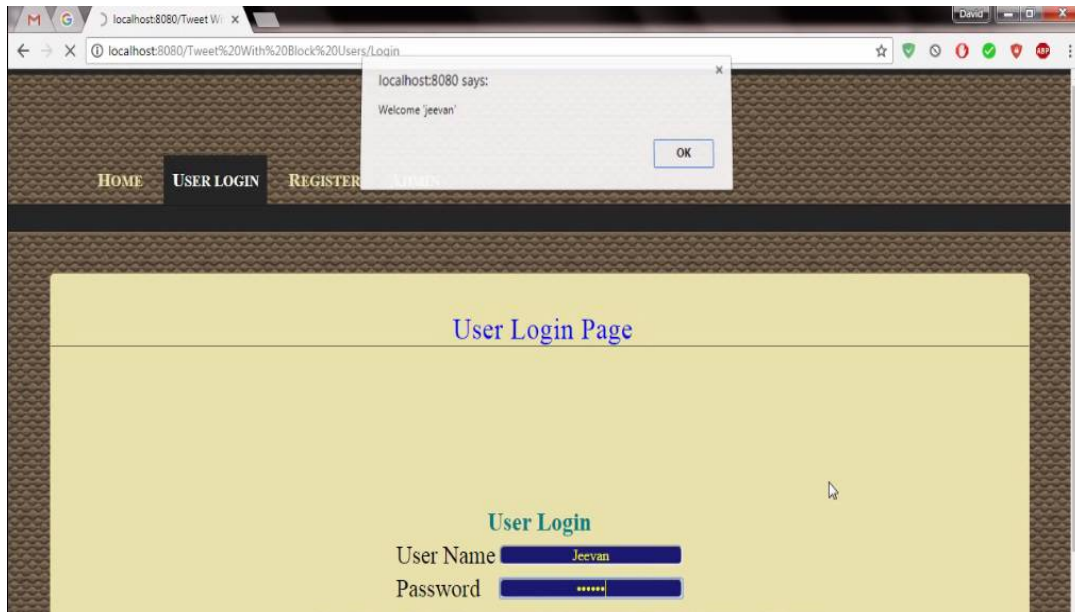


Fig.2.user login

In fig.2 user need to fill their corresponding username and password ,after that it will be verify with the database whether the user is authorized or not.

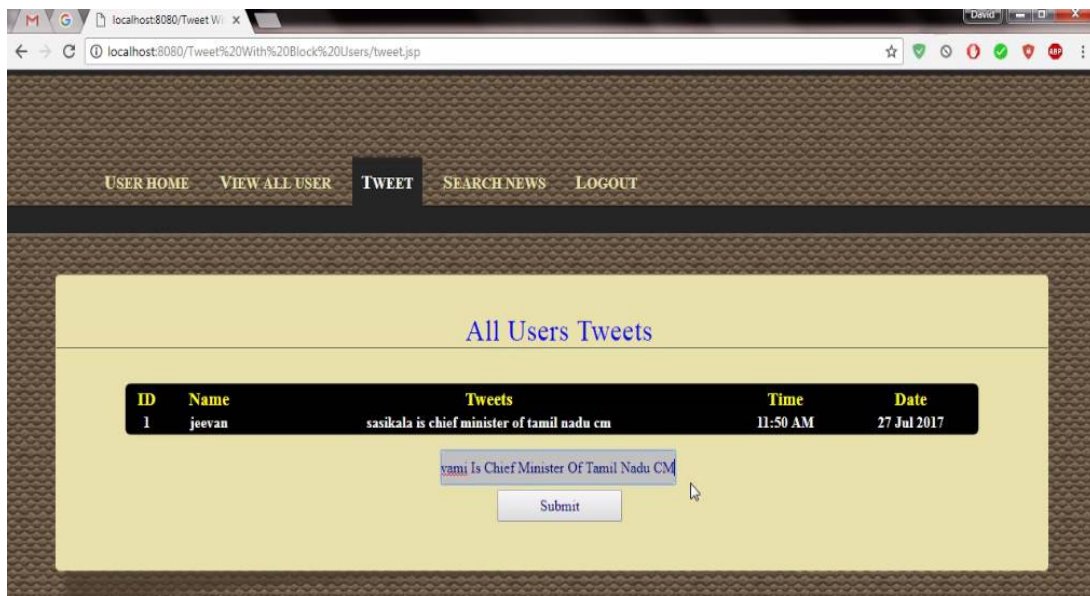


fig.3. view all tweets

In fig.3 After the authentication process user can view all the other tweets which posted by the other users

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fig.4. rumor or non rumor verification

In fig.4 user can identify the tweets which is rumor or not by copying the tweets and paste it in the search box .It will be processed and displayed in the bar graph

VI. CONCLUSION

In this paper, we investigate the rumor blocking problem in social networks. We propose the dynamic rumor influence minimization with user experience model to formulate the problem. A dynamic rumor diffusion model incorporating both global rumor popularity and individual tendency is presented based on the Ising model. Then we introduce the concept of user experience utility and propose a modified version of utility function to measure the relationship between the utility and blocking time. After that, we use the survival theory to analyze the likelihood of nodes getting activated under the constraint of user experience utility. Greedy algorithm and a dynamic blocking algorithm are proposed to solve the optimization problem based on different nodes selection strategies. Experiments implemented on real world social networks show the efficacy of our method. In our future work, we plan to design more sophisticated rumor blocking algorithms considering the connectivity of the social network topology and node properties. We intend to separate the entire social network into different communities with different user interests and then analyze the rumor propagation characteristics among communities. We are also interested in investigating how to prevent the rumor propagation effectively at a late stage.

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