ISSN : 0974 - 7435 Volume 10 Issue 22

2014

BioTechnology

An Indian Journal

FULL PAPER

BTAIJ, 10(22), 2014 [13667-13672]

Study on network language viewpoint extraction based on affective computing

Haiyan Gao
Jilin Sport University, Changchun, 130000, (CHINA)

ABSTRACT

In recent years, the frequent occurrence of public sentiment has caught attention. In order to effectively control the incident, the study accurately extracted public views. The diverse content mainly includes the four main elements of public opinion (the theme, the holder, statement of holder and emotional tendencies of holder). By analyzing posts on internet forum, this study found that emotion tendencies are the key points of analysis. It is mainly about the qualitative analysis of tendency on post contents in forums. The content on the web forum discussion is varied with a variety of topics and witty cyber words. For the characteristics of this network language, the study manages to improve polarity dictionary by the extension of cyber word dictionaries, mainly to add some words used in network language experiments. The study attached great importance on the special words and special symbols' influences in sentences, increasing the accuracy of the statement propensity analysis. An example is set to illustrate the problem of network language propensity: Content affective computing of theme A and theme B, if the article support A and oppose B, it means positive; otherwise it means negative. The study apples the above rules for affective computing, meanwhile statistical analyzes peoples' emotional tendencies. This research achievement has great practical values.

KEYWORDS

Affective computing; Network language; Viewpoint extraction; Polarity dictionary.

INTRODUCTION

While the Internet has brought a rapid increasing amount of users, because the design of configuration module is extracted from the business module, so the configuration module request does not change the service status; just like the business module. The last category is the educational resource requests; such requests need to change the status of the business services[1]. For example, a user submits a request to study the video; this operation will start the workflow management module. The platform will allocate system resources to maintain the life cycle of this video. Workflow engine and rules engine can smoothly handle a variety of requests and better arrange application services to support scheduling resources. The backend server and database management system can provide automatic data management. Schools no longer need labor management; maintenance and upgrade of the entire system are also done by professional service providers. Students no longer need to maintain and manage by themselves. The application of internet cannot be separated, all students' requests and data transfer via the Internet, so the data safety cannot be guaranteed during transmission. Though security requirements of distance education platform cannot compete with commercial systems, especially the financial system, teachers, students' personal information, examination questions, particularly sensitive questions, teaching documents and other confidential data cannot be publicly available[2]. This requires guaranteeing the data safety during the design of new distance education platform. Monitor this text message; prevent the occurrence of public opinion, so as to maintain long-term stability of society.

Public opinion is most peoples' consensus on an event or a certain policy, that is, to maintain the independence between the user databases, an account corresponds to a database. This isolation scheme is the most complete, and data security is the highest. The only disadvantage is that funding is too much. The second is the data pattern isolation and shared libraries; the entire educational platform provides with only one database, and each account has a separate mode; the abstract logical data isolation for each user is not the actual physical isolation; and a database can support multiple users, which effectively reduces the system cost. Due to the abstract isolation, logic relation is relatively complicated, which increase the management difficulty[3]. Therefore, using complex network theory and studying the public opinion evolution from the perspective of complex network have important significance.

EXPANSION OF POLARITY DICTIONARY

Vigorous development of the Internet has also brought a sharp surge in the number of web text, which means to download the original server's resources onto mobile hard disk. Users have the right to transfer all the files on the database to any database they want to transfer[3]. After the data transfer occurs, the original database server will lose access to private data, so users must build their own polarity dictionary, to include these new words as many as possible.

In the single topic of public opinion propagation model constructed in this study, the third is the sharing of both data model and database. The education platform has only one database, the code amount of safety and reliability aspects of developers will be increased; and the data in platform are easily lost. Considering the system cost and safety, the article uses the second isolation scheme for data isolation. The relatively low cost and requirements of security are more in line with China's distance education requirements. In the system development process, the user data is separated out from the system. After the operation of system platforms, if the user's data and data storage location can be kept updated and synchronization, which means if a new data, is stored to a new location, the private data is under protection. When system is creating and running the database, usually it will encrypt the database by conventional encryption methods; sometimes a small change in the original system function will update data storage locations. Take p1 = 0.5, with the foundation of a real network, Price directed scale-free networks, the article selected the node with maximum attention (pr has maximum value) as a propagating source, the experimental results are shown in Figure 1.

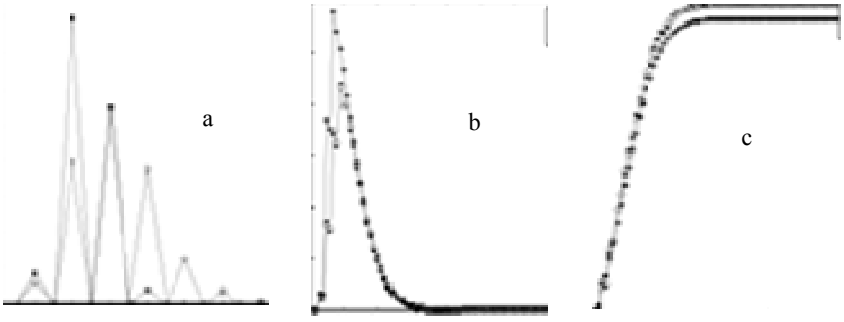

Figure 1 : The changing process of E,I,R in each network when p1=0.5, v=0.01

Figure 1a shows that the changing curves of E appear choppy trend. The third is the sharing of both data model and database. The education platform has only one database, the code amount of safety and reliability aspects of developers will be increased; and the data in platform are easily lost. Considering the system cost and safety, the article uses the second

isolation scheme for data isolation. The relatively low cost and requirements of security are more in line with China's distance education requirements[4]; from the Figure 1b, it is known that in the system development process, the user data is separated out from the system. After the operation of system platforms, if the user's data and data storage location can be kept updated and synchronization, which means if a new data is been stored to a new location, the private data is under protection. When system is creating and running the database, usually it will encrypt the database by conventional encryption methods; sometimes a small change in the original system function will update data storage locations, moreover I(real)>=I(SF) ; From the Figure 1c, the number of individual who is immune to online topic is increasing and stable gradually, R(real)>=R(SF).

The SEIR model evolutionary process presented in this study has better propagation effect in real networks than the directed scale-free network. An account corresponds to a database, and each account has a separate mode, providing an abstracted logical data isolation for each user, not the actual physical isolation; and a database is capable of supporting multiple users, which effectively reduces the system cost. Due to the abstract isolation, logic relation is relatively complicated, so it is difficult to manage. The third is the sharing of both data model and database. The entire education platform has only one database and a data model. Adding identifier in business table of isolation demand (user ID) can achieve the purpose of isolating the data; this way the sharing degree of database will be highest and the system cost will be lowest[5], however the isolation is not complete; the disadvantage is increased burden on the system developer. The code amount of safety and reliability aspects of developers will be increased; and the data in platform are easily lost. Assuming p1 = 0.1, v = 0.01, taking the node with maximum attention as propagating source, the experimental results are shown in Figure 2:

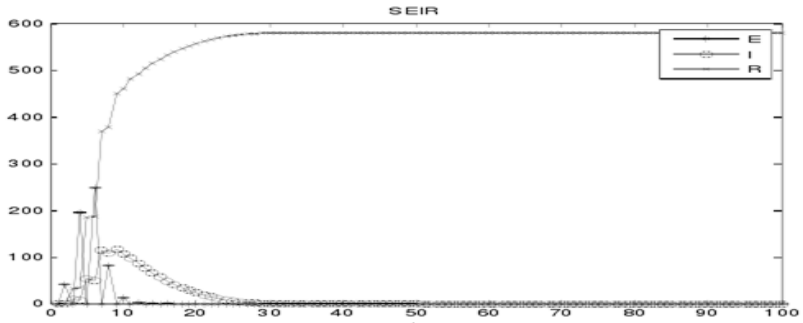

Figure 2 : Propagation process of topics when p1=0.1, v=0.01

It can be seen in Figure 2 that after keeping other factors constant and changing p1 to 0.1, data isolation should adopt the second isolation scheme, because it has relatively low cost, and the safety can meet the requirements, which is more in line with China's distance education requirements. Most scheme just encrypted system users' identity, most of the data information in system is not encrypted, taking into account that the database management system has its own set of data access security mechanisms. Because the database management authority of distance education system is belong to the system operator, it is necessary to encrypt certain private data, avoiding illegal disclosure and stealing. Set p1 = (0: 0.1: 1), v = 0.01, the experiment is shown in Figure 3:

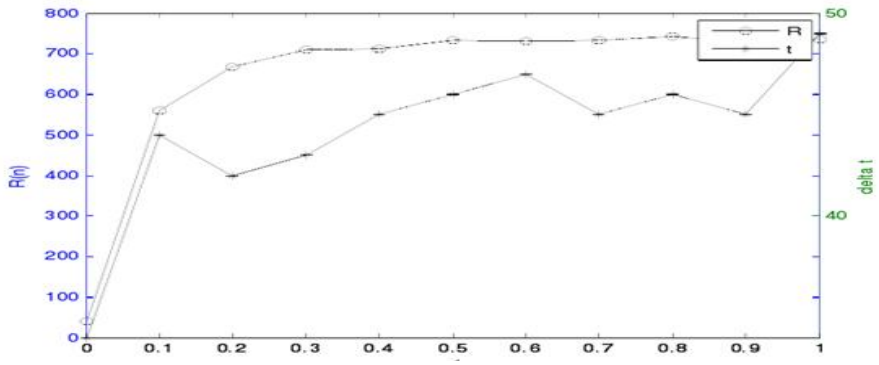

Figure 3 : Influence of pl on propagation process

From the left side of Figure 3, it is known that with the increase of p1, when p1 <0.4, this combined mode require students for multiple registration, the account is not shared between the servers, which means the registered account in this server cannot learn and download resources on that server. Every time students change a server they need re-register once, which is very inconvenient. The new education platform proposed in this study take full advantage of cloud computing, collect resources in each central server and store in "cloud". Distance education platform provides automated search and

intelligence capabilities to choose the best path to transfer data. Servers can spare to each other[6], it can also be switched with each other, once a server fails, the platform can automatically switch to another server, and the user can not feel this process, this way the students do not have to use a different server during multiple registration. All the server resources can be used in one registered platform, achieving the greatest degree of learning resource sharing; improving the entire platform system reliability at the same time. The system uses modular design and clear logical structure. The article choose real network as foundation, based on the assumption of p1 = 0.2, v = 0.01 and 0.001, taking the node with maximum attention as propagating source, the outcome of the communication process between v and single topic of public opinion is shown in Figure 4:

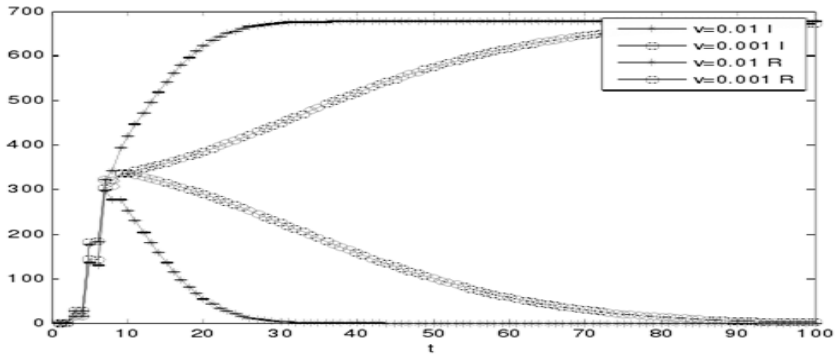

Figure 4 : The changing process of I\R status in the internet when v=0.01\0.001

Base layer provides the foundation for server and application layer, such as providing computing and storage capabilities. It can be said base layer is like energy library of platform[7]. Because business processing module of system is in the application layer, the application layer is the core of platform system. Business processing continuously refine to: comprehensive overseeing, permission assignment, business processing processes, automatically sign by system, document processing, information collection, search, etc. Application layer mainly provides interactive interface for students or other programs. In order to investigate the impact of v on the evolution of the relaxation time, the study take v = [0.001: 0.1], the relaxation time change is shown in Figure 5:

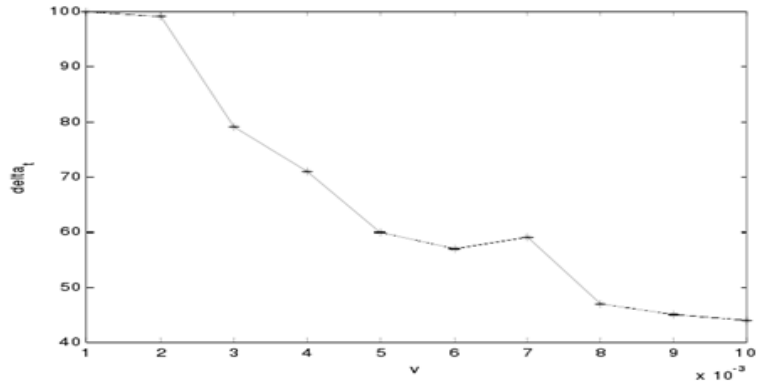

Figure 5 : Temporal variation of internet reaching stable state during the v= [0.001:0.01] process

Figure 5 shows that, with the increase of v, there may be security risks existed in corporate network (such as, the easily attacked host or possibly leaked sensitive data) ; after deep analysis, the study come up with an effective enterprise intranet network security solution. The major security policy include: control of access right, encipherment protection of communication data, security audit program, virus protection, security backup and management. After example verification, it can been seen that protective measures of the program can effectively protect the integrity, security, controllability and other characteristics of network data. It can perfectly solve the intranet network security issues. Finally, by safety and risk analysis on Dalian Eurofilm Network Company and detailed design of the company's internal network security solutions, the experimental results coincide with current situation.

IMPLEMENTATION ON EXTRACTION METHOD OF PUBLIC OPINION

Public opinion refers to the consistent views of people on an event; it attracts the decision makers' attention. Currently, public opinion mainly comes from the internet. It provides efficient and convenient services for different users; Server Scope should meet the needs of a variety of workflows. Workflow module configuration tool only supports internal workflow of department or platform system; it does not support other temporarily. Automatically system sign module is

achieved by the signature and watermarking recognition technology. File processing module's main function is to increase and decrease or transfer documents on the server. The documents in the database are stored in a table; among the different tenants they are mutually independent. You can also automatically manage certain electronic files, for example, to clean up expired or temporary files, activate the relevant documents. The main function of the search module is to extract relevant information of files, allowing users to enjoy better query service. Students can take advantage of this feature to freely search for relevant information in the database of network security management system. Security management has become an essential security measure in network safety; it is an essential means of public sentiment monitoring.

Set impact factor $\alpha = \beta = 0.5$, nowadays, quality-oriented education is advocated. Multimedia as a modern teaching methods play an increasingly important role in the use of multimedia teaching aid, so that the means and methods of teaching are more colorful. Teachers can enrich the teaching contents on the basis of conventional teaching; this interactive learning environment can stimulate students 'interest and enthusiasm, it is conducive to the formation of students' learning motivation. Through the addition of multimedia teaching methods, the students raised interests, selection results are shown in TABLE 1:

TABLE 1 : Selection of propagation source node in each network

	Highest attention	Greatest overall influence degree	Highest interestingness
Real data	1	3	213
SF	1	8	94

The study takes experiments according to the set state transition rule of model; the experimental results are shown in Figure 6:

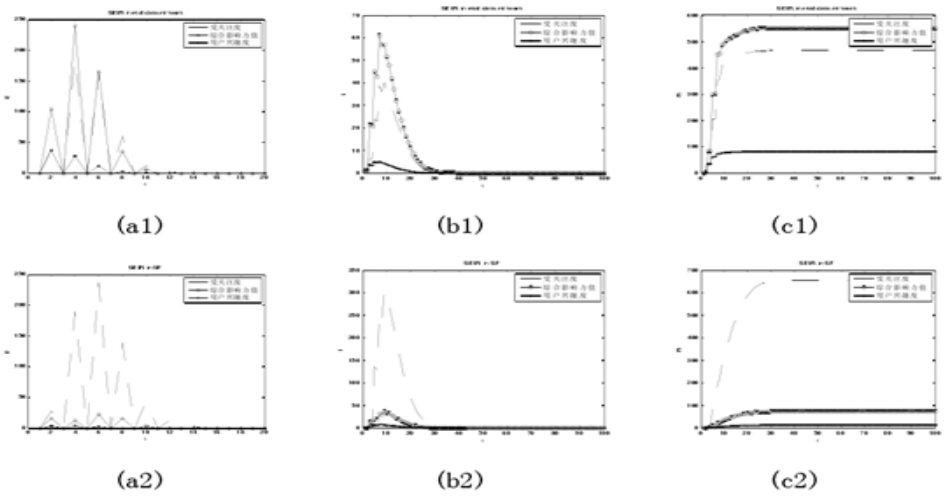

Figure 6 : Propagation model evolution of single topic of public sentiment in each network structure

In Figure 6, a, b, c respectively represent the changing process of individual number of latent state, propagating mode and immune state in the network with the evolution of time step. Figure a describes once transmission nodes appear in the internet, all the fans were transformed into a latent state in the process; Figure b describes the process that forwarding behavior of users cause the increase in spreading individuals, and it fails with the time changing; Figure c describes with the changing time step, users are willing to take the initiative to discover and explore the unknown knowledge, helping deepen understanding of knowledge. And the use of computer networks in multimedia teaching methods produce a more collaborative learning model. Comprehensive source of knowledge help build students' overall knowledge system, creating a more significant effect on teaching. Comparison between Figure a1 and a2 shows that the above advantages of multimedia assisted teaching are now more widely applied. From a practical point of view, in football technology teaching, adding multimedia teaching aids has improved football teaching significantly. Football technique involves a wider aspects; it cannot be fully explained. The article just chooses three aspects for analysis. Effect trends of each propagation source also are reflected in Figure b and Figure c. In Figure b, the propagation individual is converted to immune status with the time caning and impact velocity v. Therefore, the disappearing process of state is more moderate. In Figure c1, when the propagation source is the node with the most comprehensive influence, the influence scope of single topic in public sentiment is widest, which is consistent with conclusion in literature [31]; in Figure c2, when the propagation source is the node with the greatest attention, it attracts greatest spreading influence in Price network.

Adjust the propagation model. In real network, p1 were calculated only with the connection of attention, overall influence value, user interest. After the statistic of different evaluation of p1, the propagation situation of public sentiment topic produced by the same propagation resource is shown in Figure 7:

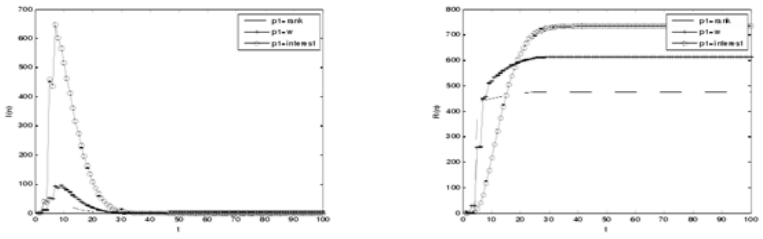

Figure 7 : Propagation of single topic in public sentiment when the fixed propagating sources and Pl take different values

Figure 7a shows that when p1 only related to the degree of interest. The number of individuals with the occurrence of the network forwarding behavior is more than another two conditions. It indicates that interestingness is helpful for the occurrence of the forwarding behavior; Figure b shows that the through interpretation of technology on the basis of freeze-frame or slow motion can deepen the impression of students. The intuitive teaching principles are fully reflected, guiding students to establish a correct concept of action. Figure a as well as figure b show that the user's interests are in favor of the occurrence of propagation behavior.

CONCLUSION

Through the analysis of posts on internet forums, it is found that the emotion tendency is the key of analysis. It is mainly about the qualitative analysis of tendency on post contents in forums. The content on the web forum discussion is varied with a variety of topics and witty cyber words. For the characteristics of this network language, by analyzing posts on internet forum, this study found that emotion tendencies are the key points of analysis. It is mainly about the qualitative analysis of tendency on post contents in forums. The content on the web forum discussion is varied with a variety of topics and witty cyber words.

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