Countermeasures of Internet Rumor Management Based on Artificial Intelligence Technology

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Abstract. With the development of The Times, the development of artificial intelligence technology with each passing day, its research and application has been widely penetrated into human daily life and scientific field, to human politics, economy, ecology, culture and other aspects of the abyss. Therefore, people must be alert to the risk of spreading online rumors brought by artificial intelligence technology. The purpose of this paper is to study the countermeasures of Internet rumor propagation under the background of artificial intelligence. This article from the perspective of risk early warning, to promote the sound development of artificial intelligence as the background, combined with the related theory foundation, in order to effectively cope with Internet rumors spread for specific research object, analyzes the present situation of Internet rumors spread, and from the technical level, national level and system level three Angle analysis how to effectively deal with Internet rumors spread, develop effectively cope with the spread of Internet rumors solutions and Suggestions, in order to in a certain extent, reduce the risk of Internet rumors transmission losses to individuals or countries. The experimental results show that the effective response to network rumor propagation can alleviate the loss caused by its risk, promote the good development of artificial intelligence technology, and build a safe and friendly network communication and information dissemination environment.

Keywords: Artificial Intelligence, Internet Rumors, Countermeasure Research, Questionnaire Method

1. Introduction
The emergence of the era of intelligence promotes the new development of various fields, and also leads to the emergence of new rumors such as Internet rumors. Internet rumors refer to the use of Internet platforms to spread false statements that are inconsistent with the facts. Internet rumors have the characteristics of fast spreading speed, wide range, large number, difficult to control and so on, which makes the emergence and spread of Internet rumors will bring huge losses to the relevant people. Therefore, how to effectively deal with online rumor propagation and formulate relevant governance Suggestions with the help of artificial intelligence technology is the focus of our current research. Only by effectively dealing with the risk of online rumor propagation can we provide support for China's construction of network security.
In recent years, Internet rumor propagation has become the key research object of scholars at home and abroad, and corresponding research results have been obtained [1]. Foreign scholars’ research on Internet rumors is earlier than that in China. The main research content is to define and constantly update the connotation of rumors, classify Internet rumors as Internet defamation, and regulate Internet violence and online defamation [2]. Although domestic research started late, related research results have been ahead of those of foreign countries [3]. Domestic scholars not only define, optimize and classify Internet rumors, but identify and classify Internet rumors, find out the different development stages and characteristics of Internet rumors, and take these as the judgment criteria to deal with Internet rumors [4]. As far as the existing research results are concerned, neither domestic scholars nor foreign scholars have studied from the perspective of restricting and governing Internet rumors, so the existing research results are one-sided to some extent and the research fields related to Internet rumors are not comprehensive enough [5].

Therefore, this paper will combine the existing research results, starting from the level of constraint and governance of network rumors, use case analysis and literature survey to analyze the necessity and possibility of network rumor propagation, and analyze the possibility of artificial intelligence technology participating in network rumor governance [6]. Then, starting from the network rumors themselves, the author tries to find out the root causes and propagation conditions of network rumors, analyzes the formation mechanism of network rumors, and finds the entry point of artificial intelligence technology and governance of network rumor propagation by using the natural language processing technology in the field of artificial intelligence [7]. Then, based on the propagation characteristics, propagation channels and propagation rules of Internet rumors, the paper conducts an in-depth study on artificial intelligence technology and network rumor governance [8]. According to the network spread rumors of a variety of practical problems, from the perspective of artificial intelligence technology in network rumors governance effective response to the spread of Internet rumors plan and Suggestions, solutions can be drawn lessons from for network environment governance in China, so as to build a good network information space, using neural network to safeguard every citizen would not be hurt by the Internet rumors power [9, 10].

2. Method

2.1 Research Issues and Difficulties
Research emphasis of this paper is to research and collection of data and case study, according to the research data and relevant case to verify the necessity and possibility of response to Internet rumors spread, and to find out the possibility of artificial intelligence technology in network rumors governance and the necessity, on this basis to find out the root causes of Internet rumors and transmission conditions, the analysis of the transmission mechanism of Internet rumors, and to further find out the characters of Internet rumors transmission, route of transmission and dissemination rule[11, 12]. The research difficulty of this paper lies in how to use artificial intelligence technology to monitor and control the spread of network rumors after combining the propagation characteristics, propagation ways and propagation rules of network rumors, as well as the propagation mechanism of network rumors [13].

2.2 Research Ideas and Methods
This paper will take the relevant data in the statistical report on the development of Internet in China and the Internet rumor cases that “believe the world will end in 2030” as the analysis object to analyze the possibility and necessity of the existence of Internet rumor cases[14]. Through reading the relevant literature on artificial intelligence, the author finds out the possibility of artificial intelligence technology participating in the governance of network rumor propagation. Using the method of case analysis method and data analysis, can help us better understand the meaning of Internet rumors, and some characteristics of the spread of Internet rumors, and data analysis methods will be related to Internet rumors data more intuitive display, can help us better understand the inner meaning, data lay
the foundation for subsequent analysis. In summary, case analysis and data analysis are selected as the main analysis methods [15].

The research of this paper is divided into two parts: data collection and data analysis. There are two main processes for collecting data: first, the literature review method is used to collect as much data related to Internet rumors as possible, mainly to verify the possibility and necessity of the study of Internet rumor propagation and the data of the case of Internet rumor propagation. Secondly, the use of artificial intelligence in the field of natural language processing technology sorts through the data and research on validation of Internet rumors spread is various, the possibility and necessity of data show the amount of data and data types, find out from the data in a wide range of the most direct and verify the effectiveness of the data, to get the most direct data display, provide strong support for the research of this paper. Data analysis is mainly composed of three processes. First, the most direct data we have integrated is used to verify the necessity and possibility of network rumor propagation research, which is the basis for further research. Secondly, the paper analyzes the possibility and necessity of restricting the study of network rumor propagation by using the case of network rumor propagation, which is the core part of the study. Finally, based on the previous research and existing literature, the paper summarizes the propagation mechanism of network rumors (i.e. relevant characteristics, approaches and rules) by using the data clustering analysis technology, and proposes a scheme of how to effectively participate in the governance of network rumor propagation by combining artificial intelligence technology.

3. Experiment
Collected according to the method of literature review and related web page to verify the possibility and necessity of the study on Internet rumors spread data mainly is the size of Internet users and Internet penetration, the two data can be more intuitive reflect the network rumors spread the possibility and necessity, the bigger the scale of Internet users illustrates the Internet rumors spread has a large number of audience, the higher the Internet penetration to Internet rumors spread has provided a broad scope, combining both show that the transmission characteristics of the Internet rumors is influenced by numerous and wide range. According to the existing research results, we analyzed and summarized that the way of spreading online rumors is mainly through the Internet platform and the audience. With the increase of Internet penetration rate, the spread speed of online rumors is accelerated and the spread scope is wider. Then on Internet rumors transmission case - "believe that the end of the world will come in 2030" were analyzed, and the case of data including the rumor spread of countries, each country believes the number of the number of rumors and percentage, the more the number of countries, each country believe that the greater the number and percentage of rumours that the constraint network rumors spread is imminent, otherwise people will be in a state of the life of the end of the world, will bring the country's economic loss, create a network security environment, should be given first of network governance.

4. Discuss

4.1 Experimental Results
The relevant data in the statistical report on the development of China's Internet are integrated, as shown in figure 1. In figure 1, we can see that with the increase of each year, both the scale of Internet users and the Internet penetration rate are on the rise year by year. This is a convenience brought by the development of The Times, but it is also one of the risks of spreading rumors on the Internet. We cannot stop the growth of Internet users and Internet penetration rate, but it is necessary to restrain the spread of Internet rumors.
Figure 1. Required en scale and Internet penetration

The relevant data of the Internet rumor case of "believe the world will end in 2030" are shown in table 1. In table 1, we can see that there are still some people who believe the Internet rumor in the whole world, and a certain number of people in each country believe the rumor. To some extent, this shows that it is necessary to control and restrain the spread of rumors on the Internet and to clean up the network environment. According to the number of countries reached by the rumor and the number of people who believe the rumor, Internet rumor propagation has two characteristics: large scope and fast speed. The characteristics of the spread of network rumors are understood, which provides a certain support for the subsequent network rumor spread governance scheme.

Table 1. Case related data sheet

| Country    | Number | Percentage   |
|------------|--------|--------------|
| China      | 20     | 0.092165899  |
| Turkey     | 14     | 0.064516129  |
| Russia     | 13     | 0.059907834  |
| Mexico     | 13     | 0.059907834  |
| Korea      | 13     | 0.059907834  |
| Japan      | 13     | 0.059907834  |
| United States | 12   | 0.055299539  |
| Argentina  | 12     | 0.055299539  |
| Hungary    | 12     | 0.055299539  |
| Poland     | 11     | 0.050691244  |
| Sweden     | 10     | 0.046082949  |
| France     | 10     | 0.046082949  |
| Spain      | 9      | 0.041474654  |
| Belgium    | 9      | 0.041474654  |
| Canada     | 9      | 0.041474654  |
| Australia  | 8      | 0.036866359  |
| Italy      | 7      | 0.032258065  |
| South Africa | 7     | 0.032258065  |
| United Kingdom | 7    | 0.032258065  |
| Indonesia  | 4      | 0.01843318   |
| Germany    | 4      | 0.01843318   |

On the basis of the analysis of the existing literature, we can find that the propagation mechanism of Internet rumors is mainly the three stages of rumor generation, propagation and diffusion. Usually,
the form of Internet rumor keywords appears on the mobile client of the public. The traditional network rumor spreading governance is mainly concerned with the relevant personnel to see the rumor and then take measures to control and monitor the rumor, the lack of pertinence and information feedback mechanism. The participation of artificial intelligence technology mainly starts from the technical supervision link and makes use of its own language features and functions to effectively control rumors.

Before participating in the governance of online rumor propagation, there is an important stage, namely, the rumor recognition stage, which can use artificial intelligence technology to manufacture keyword scanner, dictionary extender and web filtering module. Take "believe the world will end in 2030" as an example. The key words are doomsday and 2030.

After identifying network rumor, it is network rumor spreads management link. In this stage, artificial intelligence technology is mainly used to track the propagation path, observe the propagation effect and accurately control the rumor propagation. Tracking path refers to rely on the algorithm of the network path tracking the spread of Internet rumors path tracking function, and will be announced the propagation path in a timely manner, after will display the real-time reading quantity, push message of concern, according to these can be observed the effect of Internet rumors spread, according to the effect after the analysis we can make precise management some Internet rumors.

4.2 Analysis of Influencing Factors and Countermeasures
After analysis, we can conclude that artificial intelligence technology is mainly involved in the identification and governance of network rumors. According to the advantages of artificial intelligence technology in these two links, we can formulate the following countermeasures for artificial intelligence technology to participate in the governance of network rumors propagation.

1) Enrich the network rumor database
Rich Internet rumors database is the basis of artificial intelligence technology in network rumors spread management link, what types only we fully understand the Internet rumors, and what are the specific case, we can use machine learning technology to repeated measure of these cases, after repeated training machine algorithm can provide measuring accuracy when applied. This proposal requires us to set up a special database and continuously carry out the calculation by machine algorithm.

2) Enrich the algorithm library of machine language
This suggestion means that when different machine language algorithms are used for calculation, the results of different machine language algorithms will be different. How to distinguish each machine language algorithm and how to determine the applicability of each machine language algorithm needs us to keep trying. Then, the continuous update and iteration of the machine language algorithm requires professionals to conduct in-depth research on this, and strive to find the machine language algorithm with the best measurement effect, so that when the actual application is carried out, the machine measurement results will conform to the real results. Finally, the generation of rumors is constantly changing, and the language algorithm also needs to continuously upgrade and update this feature of rumors to be able to recognize special rumors.

3) Form the firewall technology of rumor governance
Rumor governance using artificial intelligence technology development of firewall technology, analysis of network data monitoring, once appear online rumors keywords in the database, immediately start the machine language algorithm calculates the effect of the rumors and propagation path tracking, combined with data mining technology have a thorough understanding of the rumor spread path and characteristics, according to different types of rumors make different responses.

5. Conclusion
To sum up, the development of artificial intelligence technology will make artificial intelligence products more widely integrated into social life, but how to ensure the safety and reliability of artificial intelligence products is a problem we should continue to pay attention to. Network rumors
are the inevitable outcome of the development of market economy. Artificial intelligence is extremely effective in information processing. How to effectively use artificial intelligence technology to control network rumors still needs our continuous research. We should always help to build the network platform into a platform that delivers positive energy, and build a new network environment with effective governance and the elimination of network rumors.

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References
[1] Hongxing YAO, Xiangyang GAO. SE2IR Invest Market Rumor Spreading Model Considering Hesitating Mechanism [J]. Journal of Systems Science and Information, 2019, 5(11):22-25.
[2] Xiongding Liu, Tao Li, Mi Tian. Rumor spreading of a SEIR model in complex social networks with hesitating mechanism [J]. Advances in Difference Equations, 2018, 28(31):290-293.
[3] Suyalatu Dong, Yan-Bin Deng, Yong-Chang Huang. SEIR Model of Rumor Spreading in Online Social Network with Varying Total Population Size [J]. Communications in Theoretical Physics, 2017, 68(4):545.
[4] Liu, Qiming, Li, Tao, Sun, Meici. The analysis of an SEIR rumor propagation model on heterogeneous network [J]. Physica A Statistical Mechanics & Its Applications, 2017, 469(463):43-45.
[5] Yongcong Luo, Jing Ma. The influence of positive news on the rumor spreading in social networks with scale-free characteristics [J]. International Journal of Modern Physics C, 2018, 29(9):21-23.
[6] Amirhosein Bodaghi, Sama Goliaei. A Novel Model For Rumor Spreading On Social Networks With Considering The Influence Of Dissenting Opinions [J]. Advances in Complex Systems (ACS), 2018, 21(38):17-19.
[7] LI Dandan, MA Jing. Rumor Spreading and Controlling Strategies Research in Social Networks [J]. Journal of Systems & Management, 2017, 47(37):90-92.
[8] Jing Wang, Ya-Qi Wang, Ming Li. Rumor Spreading Model with Immunization Strategy and Delay Time on Homogeneous Networks [J]. Communications in Theoretical Physics, 2017, 68(12):803.
[9] ZHANG Ya-ming, SU Yan-yuan, LIU Hai-ou. Research of Rumor Spreading Considering Double Social Reinforcements in Online Social Networks [J]. Journal of Chinese Computer Systems, 2017, 246(563):892-894.
[10] Xiangbin Yan, Ping Jiang. Stability Analysis and Control Models for Rumor Spreading in Online Social Networks [J]. International Journal of Modern Physics C, 2017, 28(5):309-311.
[11] Jia, Fangju, Lv, Guangying. Dynamic analysis of a stochastic rumor propagation model [J]. Physica A Statistical Mechanics & Its Applications, 2018, 490(324):1099-1102.
[12] Nattakarn Shutimarrungson, Pongpisit Wuttidittachotti. Realistic propagation effects on wireless sensor networks for landslide management [J]. EURASIP Journal on Wireless Communications and Networking, 2019, 2019(1):809-812.
[13] Hanzhou Li, Serena Jen, Shvetank Agarwal. Management of cardiac tamponade during catheter-directed thrombolysis of saddle pulmonary embolism: A clinical dilemma [J]. Lung India Official Organ of Indian Chest Society, 2018, 35(4):336.
[14] Nattakarn Shutimarrungson, Pongpisit Wuttidittachotti. Realistic propagation effects on wireless sensor networks for landslide management [J]. EURASIP Journal on Wireless Communications and Networking, 2019, 24(1):902-904.
[15] Badoer Dominique C, Dudley Evan, James Christopher M. Priority Spreading of Corporate Debt [J]. The Review of Financial Studies, 2019, 64(51):132-135.