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Research Article

Feature Extraction Method of Electronic Information Based on Statistical Correlation

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Since the society enters the information age, science and technology have changed with each passing day. Electronic information has deeply affected social development and people's life. Based on the statistical correlation algorithm, this study analyzes the establishment model of statistical correlation algorithm. Then, the feature extraction technology of electronic information is obtained according to the statistical correlation algorithm, which promotes the development of electronic information., Afterwards, the feature extraction methods of electronic information among four cities of Beijing, Shanghai, Chongqing and Tianjin are compared and analyzed in detail. The experimental results show that the electronic information feature extraction method based on statistical correlation can be well applied in four municipalities directly under the central government, which provides some theoretical and experimental support for the electronic information feature extraction method in our country.

1. Introduction

With the support of economy, environment, and other aspects, the important position of electronic information technology has gradually become prominent and plays an increasingly important role in social development, whose value and role are irreplaceable and unrepeatable. The integration of electronic information technology and society has been deepened in the fields of industry, machinery industry, and our social life [1, 2]. However, we should understand that electronic information technology can produce value, which can produce value for social development and bring benefits to people's life. In its future development of electronic information technology, it should produce richer value and more far-reaching impact through continuous innovation and optimization.

Electronic information technology has been systematically classified in China, including household appliances, communication technology, computer application, and computer network [3]. With the progress of science and technology, electronic information technology has a broader development space. The increasingly high-end technological achievements make electronic information technology to be one of the most dynamic science and technology in the 21st century, which permeates all aspects of social development and cannot be replaced. Specifically, its application features are as follows [4].

First, electronic information has the characteristics of networking and digitization. The development of science and technology has provided a better integration opportunity for modern information technology and network technology. For example, the combination of network and HD digital processing technology has formed a tacit structure for network technology and digital technology, and is developing towards integration [5]. At present, with the support of optical fiber communication transmission technology and wireless communication technology, electronic information technology can realize reliable and stable data transmission with large capacity, long distance and large space, and has high reliability and stability, which provides favorable support for the sharing and transmission of network digital information data. Meanwhile, the digital storage technology plays a great advantage in the network structure, which can quickly find and batch process data

information, realize the rapid search and processing of massive data, and prolong the storage time of data information. Therefore, the data information can be well preserved for a long time in a safe and reliable environment.

Second, electronic information has the characteristics of automation and intelligence [6]. The introduction of cloud computing technology, big data technology, navigation technology, and other technical achievements have made the electronic information operation more efficient and accurate, many of which can be completed directly through automatic operation, reducing many manual operation links. At the same time, with the expansion application scale of electronic information technology, the electronic information technology has been deeply combined with intelligent sensors and other facilities, which is convenient for operators to grasp and transmit information automatically and efficiently.

Third, electronic information has the characteristics of miniaturization and integration [7]. During the development of electronic information technology, most of its facilities and equipment use integrated circuits and use high-score composite materials to make sensors, which reduce the volume and thickness of sensors. At present, the research and development of millimeter and nanosensors have been realized. The reduction of volume does not affect the functions of sensors, but effectively saves space resources and makes the application of sensors more convenient and flexible, which plays an important role in improving the overall integration of information units.

Finally, electronic information has the characteristics of high efficiency and rapidity [8]. Electronic information technology has good adaptability and expandable space. At present, the deep combination with network technology, sensor technology, and other technical achievements makes its technical system and function more perfect, which can realize high-efficiency and high-speed information processing, and provide great convenience in daily office and production development.

At this stage, people are used to the convenience and quickness brought by electronic information technology, but people's cognition of electronic information technology is not sufficient. From the development of electronic information technology at this stage, it is still in the initial development stage. From the domestic point of view, there is not enough technical force, sufficient development resources and environment as support and the electronic information industry organization has not built a mature and scientific development system [9]. China lacks professional electronic information technology talents, which is the biggest constraint restricting the innovation and development of electronic information technology. The main reason is that China's talent training goal is too single and there are few compound high-end talents. The main results are that our country can only ensure that the talents have excellent ability in one aspect, and cannot provide sufficient intellectual support from the comprehensive development of electronic information technology. At the same time, there is a relative shortage of development resources. The reason is that China has the potential in the development of electronic information technology. However, affected by the current adverse market environment, the existence of counterfeit and pirated products seriously affects the health and stability, and inhibits the development space of electronic information technology. [10]. In addition, China has not built a reasonable electronic information technology industry organization in line with China's national conditions, which hinders the upgrading and renewal of the industry. So, it is urgent to build a scientific technology industry organization based on China's actual national conditions in order to provide sufficient power for the development of electronic information technology.

Therefore, in order to solve this problem, electronic information has a good future development direction. Firstly, electronic information needs system integration. The application of electronic information technology is not presented separately in a certain form, and it needs the cooperation of hardware facilities [11]. This is not only the carrier of its technical practice, but also the carrier to give full play to its value and function. At present, there is still great room to improve the integration of system integrated circuits, and it can be further improved and optimized in its universality and scope of use. This direction and research not only include the integrated circuit of computer equipment, but also the integrated circuit of mobile phone chip, computer CPU, and other components, which can continuously improve the integration, so as to make the operation of information unit more efficient and technical function more precise.

Secondly, electronic information needs optoelectronic technology [12]. At present, the electronic information technology in the initial stage of development will develop from the electronics stage to the optoelectronic technology stage with the improvement of the technical level, which will make the development of electronic information technology undergo essential changes. In the future, the application of optoelectronic technology can better serve China's sustainable environmental protection development, reduce energy consumption, and resource consumption in the development of electronic information technology, and improve the ecological benefits of electronic information technology. Moreover, compared with the electronics stage, the electronic information technology can form a more convenient and effective development platform, and use 3D technology and other environmental protection technologies on a large scale, so that its sustainable development has more vitality.

Finally, electronic information needs to be personalized [13]. From the current research situation, electronic information focuses more on the development of high-performance and multibusiness electronic information technology to provide higher level and more targeted services for social development, so as to meet the diversified and personalized needs of users. Moreover, in terms of the needs of social development, the demand for IP services is increasing. In order to facilitate the development of services, using voice, image, data, and other services are used to reduce the network transmission cost and facilitate the real-time communication between electronic information technology

and multimedia and wireless broadband. This trend is more obvious in the future development, and personalized functions and services can better meet the requirements of social development.

In order to effectively extract the features of electronic information, based on the statistical correlation algorithm and combined with the features of electronic information, compared with the existing electronic information feature extraction methods, the statistical correlation algorithm has the following characteristics [14]: (1) the omnidirectional correlation analysis of statistical correlation algorithm generally has broad-spectrum effect, which can avoid the redundancy of traditional electronic information features. When the redundancy is the same, the statistical correlation algorithm is more inclined to a larger redundancy distribution, that is, screening out less overlapping features. (2) Compared with the traditional feature extraction of electronic information, the statistical correlation algorithm has higher sensitive characteristics to the array, that is, it can have a greater range difference in the response to different electronic information through the statistical correlation between electronic information.

Gui et al. [15] introduced the feature extraction method of electronic information earlier, and discussed the correction method of error compensation using statistical correlation. Based on the statistical correlation algorithm, Janani et al. [16] corrected the defects of traditional electronic information extraction and optimized it, which had the characteristics of simplicity and convenience. By analyzing the shortcomings of traditional electronic information extraction methods, Mar et al. [17] creatively contained statistical relevance in the process of electronic information extraction, which was fast and accurate. Zhou et al. [18] compared the traditional electronic information extraction methods, and then used the principle of statistics to screen and analyzed the electronic information, which had achieved unexpected results in the extraction of electronic information.

With the continuous improvement of calculation speed and accuracy, the application of electronic information feature extraction is becoming more and more common, which promotes the development speed of various signal recognition technologies [19]. Although the traditional electronic information extraction technologies have certain shortcomings, they also promote the vigorous development of various industries step by step, make life more intelligent, and greatly reduce the cost of manpower and improving the efficiency of work. However, in order to promote industrial production and social progress, it is urgent to find new electronic information extraction technology, so as to make our life more convenient and the city more prosperous [20].

Therefore, the main innovations of the algorithm based on statistical correlation are as follows [21, 22].

(1) For the redundancy between candidate features and selected features of electronic information, the weight function is designed to reduce the feature weight with small dispersion of joint redundant information, and reduces the number of mutual redundancy between the proposed features.

(2) The feature sensitivity evaluation function based on variance is designed to make the extracted electronic information features that have higher recognition degree to the target response.

In my opinion, one of these two innovations is to reduce the redundancy of the function and facilitate the calculation, while the other innovation is to make the feature extraction of electronic information accurate. In other words, the first innovation is conducive to the rapid calculation of the second innovation. The two complement each other and contribute to the smooth progress of the statistical correlation algorithm.

Therefore, based on the advantages of statistical relevance, this study optimizes and analyzes the statistical correlation algorithm, and establishes the corresponding statistical relevance algorithm model. Afterwards, the model based on statistical correlation algorithm can classify and screen the characteristics of electronic information, and then extract the characteristics of electronic information according to the characteristics of electronic information. Then, analyzes the extraction of electronic information features according to the actual situation and future development of electronic information, so as to provide method and experimental support for electronic information feature extraction based on statistical relevance.

2. Algorithm Analysis Based on Statistical Correlation

2.1. Overall Algorithm Model. In the feature extraction of electronic information, this study uses statistical correlation algorithm for function modeling and analysis. Using this algorithm, the accurate extraction of electronic information features can be realized, and the operation is simple and convenient.

According to the defects of existing electronic information extraction methods, the evaluation function based on statistical correlation algorithm is:

$$\begin{aligned} J(X_m) &= J_{dsg}(X_m) - J_{rdu}(X_m) + J_{sen}(X_m) \\ &= \frac{1}{K}\sum_{L_k \in K} \alpha_k \left\{ I\langle X_m; L_m | L_k \rangle - I(X_m; L_m; L_k)\right\} - \frac{1}{N}\sum_{X_n \in N} I(X_m; X_n; L_m) + \beta E(X_m). \end{aligned} \tag{1}$$

In the above equation, the evaluation function of characteristic performance is composed of discrimination evaluation function $J_{dsg}(X_m)$, redundancy evaluation function $J_{rdu}(X_m)$ and sensitivity evaluation function $J_{sen}(X_m)$. The discrimination evaluation function can distinguish other impurity characteristics of electronic information, which is conducive to information purification. Redundancy evaluation function is to further optimize the redundant electronic information characteristics, and the sensitivity evaluation function is to ensure the accuracy and advanced nature of the process of extracting electronic information features. The derivation and analysis of each sub evaluation function will be analyzed in detail.

2.2. Characteristic Distinction. In the actual extraction process of electronic information, the components of the identified electronic information are often very complex. So how to effectively screen and analyze the electronic information and measure the redundant information is undoubtedly very difficult. Therefore, this algorithm obtains the mutual information between the feature and the corresponding and noncorresponding feature tags, and constructs an evaluation function to represent the distinguishing performance of the feature to different tag distributions.

By fully arranging the feature corresponding labels, a distribution set K containing all possible noncorresponding label vectors L_k can be constructed, in which some vectors have certain similarity with the feature corresponding label vector L_m, and the similarity of different vectors is different. In order to make L_k with higher similarity with L_m get greater weight, the ratio of the same number of tags in L_m and L_k to the total number of tags is taken as the similarity factor λ_k. In addition, weight is used for feature discrimination. Noncorresponding label distribution set K and similarity factor set λ are as follows:

$$\begin{aligned} K &= \{L_1, L_2, \ldots, L_k\}, \\ \lambda &= \{\lambda_1, \lambda_2, \ldots, \lambda_k\}. \end{aligned} \tag{2}$$

The feature X_m represents the information feature in the process of electronic information extraction, that is, the label of electronic information, which belongs to the core content of electronic information. What's more, the most intuitive representation of its excellent discrimination performance is that the mutual information between this variable and the corresponding tag variable is greater than that with other tags:

$$I(X_m; L_m) > I(X_m; L_k). \tag{3}$$

$J_{dsg}(X_m)$ function is mainly used to distinguish the characteristics of electronic information, so as to better extract electronic information. Obviously, the most direct way to design the evaluation function is to make a difference between the two. The greater the difference, the stronger the distinction of features, such as

$$J_{dsg}(X_m) = I(X_m; L_m) - I(X_m; L_k). \tag{4}$$

The discrimination performance of a single label distribution cannot well measure the actual discrimination performance of the feature. Therefore, it is necessary to calculate the mean value of the mutual information difference between the feature and all label distributions in set K. In the process of accumulation, the joint mutual information of the feature, corresponding label and noncorresponding label distribution will be accumulated many times. Therefore, subtract this joint distribution every time when calculating the difference to obtain a new evaluation function:

$$J_{dsg}(X_m) = \frac{1}{K} \sum_{L_k \in K} \alpha_k \{I(X_m; L_m) - I(X_m; L_k) - I(X_m; L_m; L_k)\}. \tag{5}$$

However, when the correlation between features and corresponding tags is lower than that of noncorresponding tags, the evaluation function of features may have a negative number, which will affect the evaluation of redundancy and sensitivity of subsequent features. The feature of electronic information is marked by $J_{dsg}(X_m)$ function, and then the feature function is used to remove the redundant electronic information. The main reason for negative mutual information is that invalid mutual information is subtracted from the formula. By analyzing the mutual information between features and noncorresponding labels, it can be seen that this mutual information is composed of the joint mutual information and conditional mutual information of the three, namely,

$$I(X_m; L_k) = I(X_m; L_m; L_k) + I\langle X_m; L_k | L_m \rangle. \tag{6}$$

The conditional mutual information $I\langle X_m; L_k | L_m \rangle$ of the tag corresponding to the feature will not affect the mutual information between the feature and the corresponding tag. When $I\langle X_m; L_k | L_m \rangle > I\langle X_m; L_m | L_k \rangle$, the discrimination evaluation function will be negative. In order to remove the invalid mutual information $I\langle X_m; L_k | L_m \rangle$, a new discrimination evaluation function can be obtained by combining mutual information $I(X_m; L_m; L_k)$ instead of mutual information $I(X_m; L_m)$ of the feature and noncorresponding tag. The new function $J_{dsg}(X_m)$ removes the invalid electronic feature information, which is sensitive and accurate.

$$J_{dsg}(X_m) = \frac{1}{K} \sum_{L_k \in K} \alpha_k \left\{ I\langle X_m; L_m | L_k \rangle - I(X_m; L_m; L_k) \right\}. \tag{7}$$

2.3. Feature Redundancy. The broad-spectrum response characteristics of electronic information can not only bring rich label information to the pattern recognition algorithm, but also make different sensors respond to the same target gas, that is, there is redundant information in different characteristic variables.

As mentioned above, all mutual information between feature X_m and label L_m can be expressed as $I(X_m; L_m)$. When another feature X also has mutual information with X_m, the original mutual information is reduced to $I\langle X_m; L_m | X \rangle$. Therefore, the redundant mutual information

is obtained by subtracting the effective mutual information from the total mutual information:

$$J_{rdu}(X_m) = I(X_m; L_m) - I\langle X_m; L_m | X\rangle = I(X_m; L_m; X). \tag{8}$$

Since the purpose of the algorithm is to screen out the independent feature subset N as much as possible, the algorithm only cares about the independence between the features in the set N. So we can get that the redundancy function $J_{rdu}(X_m)$ is to prevent redundant and repeated information from appearing in the electronic information features, and prefilter the electronic information to obtain the required electronic information features

$$J_{rdu}(X_m) = \frac{1}{N} \sum_{X_n \in N} I(X_m; X_n; L_m). \tag{9}$$

2.4. Characteristic Sensitivity. In the ideal feature selection model, the change range of feature variables will not affect the result of pattern recognition. However, in the actual extraction process of electronic information, it will be disturbed by various impurity information. The sensitivity evaluation function $J_{sen}(X_m)$ is to prevent the interference caused by other information in the process of electronic information feature extraction and maintain the purity of electronic information. Therefore, the algorithm designs the sensitivity evaluation function according to the variance of features, which is shown in the following formula:

$$J_{sen}(X_m) = \beta E(X_m), \tag{10}$$

where β in the sensitivity evaluation function $J_{sen}(X_m)$ is the variance coefficient in the feature extraction process of electronic information.

In general, the statistical association algorithm is applied to the feature extraction of electronic information. The specific operation steps are shown in Figure 1. At the same time, the algorithm has the following advantages:

(1) The electronic information feature evaluation function based on statistical correlation algorithm is designed, which fully measures the discrimination, redundancy, and sensitivity of features.

(2) The algorithm calculates the mutual information between the feature subsets of electronic information more accurately by gradually selecting the feature with the highest score.

3. Experimental Verification and Analysis

3.1. Experimental Data Collection of Electronic Information Characteristics. In order to better verify and analyze the algorithm based on statistical correlation, this study mainly studies the statistical calculation of the main electronic information of Beijing, Shanghai, Chongqing, and Tianjin. In the process of electronic information extraction, it should be ensured that the electronic information sources of the four municipalities directly under the central government are consistent; the methods used are implemented in accordance with the current standards and specifications. What's more, other impurity information should not be exist to ensure the purity of electronic information sources. In addition, it should also ensure the openness and transparency of the experiment, and better verify the electronic information feature extraction method based on statistical correlation.

3.2. Experimental Setup. Based on the statistical correlation algorithm, the useful electronic information is selected, and then the support vector machine method is used for pattern recognition to compare the recognition accuracy of electronic information between different cities.

It is worth noting that when analyzing the statistical correlation algorithm, it is necessary to clarify the recognition accuracy of electronic information feature extraction. Due to the diversified development and uncertainty of electronic information, its characteristics are also different. In order to obtain accurate electronic information characteristics, we should study the influence of different electronic information signals and sound waves on the recognition accuracy in the process of electronic information extraction. Figures 2 and 3 show the influence of electronic information signal and acoustic wave on the recognition accuracy in the process of electronic information feature extraction based on the statistical correlation algorithm, respectively.

It can be seen from Figure 2 that the electronic information signal has little impact on the recognition accuracy of the feature subset, and an obvious curved surface appears, which shows that the recognition accuracy of the electronic information signal on the feature subset presents a certain numerical relationship. Meanwhile, the extraction process of the electronic information can be inferred from the signal at this time. The electronic information acoustic wave in Figure 3 will have a significant impact on the recognition accuracy of the feature subset, showing a trend of floating up and down, and each surface has no law. So, it will affect the recognition accuracy of the feature subset. Therefore, in different data sets, the proportion of feature sensitivity in the evaluation function may be different. Therefore, it is necessary to obtain the optimal parameter value according to the actual electronic information, so as to obtain the peak value of recognition accuracy.

3.3. Experimental Results and Analysis. With the renewal and progress of modern science and technology, the replacement effect of new materials is obvious. In the actual operation of integrated circuits, more and more polymer materials and composites are actively used, especially nanoprocessing, which will better promote the development of electronic information towards high integration, fully promote the development of many current industries, and effectively promote the integration effect of electronic information technology. It should be noted that if electronic information technology wants to fully improve its highly integrated development, it will be affected by embedded technology, which needs to be fully and effectively controlled

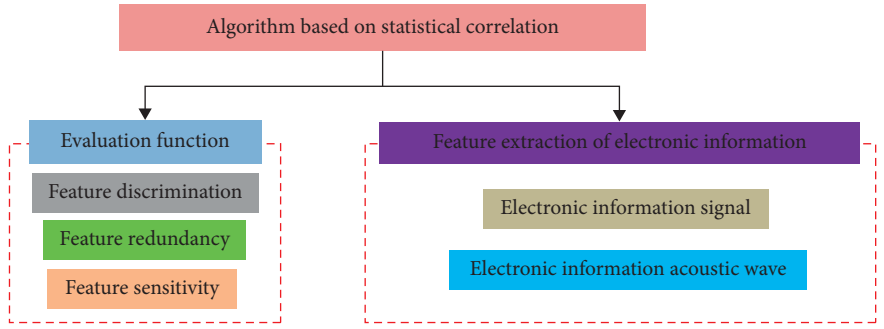

Figure 1: Schematic diagram of feature extraction of electronic information based on statistical correlation.

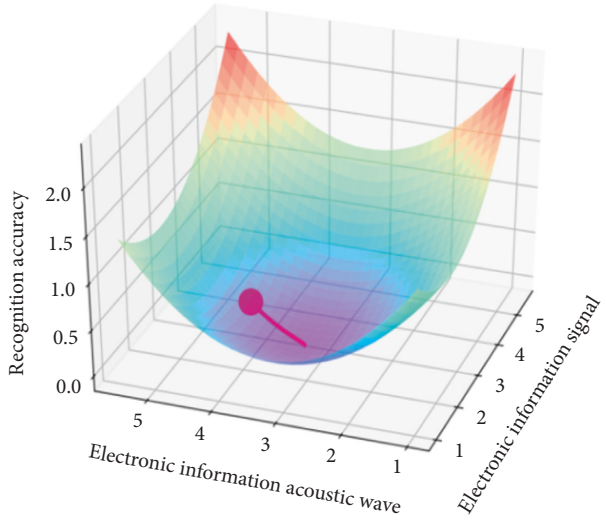

Figure 2: Influence of electronic information signal on recognition accuracy in the process of electronic information feature extraction.

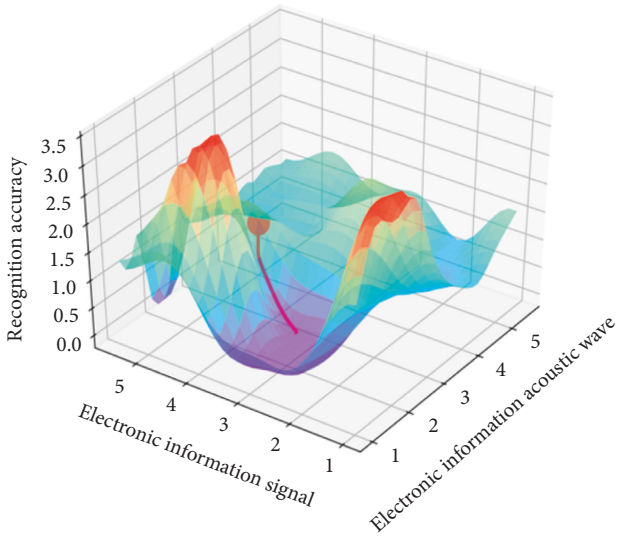

Figure 3: Influence of electronic information acoustic wave on recognition accuracy in the process of electronic information feature extraction.

to comprehensively improve the R&D level. In the process of practical development and application of electronic information technology, it has experienced two important stages of optoelectronics and electronics, and gradually transitioned to a new stage of optoelectronics. In addition, photon is an important carrier of information and energy. In the specific application process, it has produced corresponding information photonics and energy photonics, and then gradually established optoelectronic information industry and optoelectronic interdisciplinary, which shows a good development trend of optoelectronic technology in the future. Therefore, it is necessary to study the development trend of electronic information between different cities.

Figure 4 shows the distribution of electronic information among different cities based on the statistical correlation algorithm. It can be seen that the distribution of electronic information in Shanghai is relatively concentrated, with less clutter, mostly concentrated in a certain range. While the electronic information in Beijing has clutter relatively, but it is relatively concentrated, then followed by Chongqing. The development of electronic information technology in Tianjin is slow, the distribution is not concentrated, and there are many clutters. The main reason is that Shanghai's science and technology are relatively developed, and a large number of electronic information companies are distributed among them, resulting in the relatively concentrated distribution of electronic information among cities in Shanghai, and has a good development trend. While the economic level of Tianjin is low and the scientific and technological level is general, resulting in relatively few electronic information companies, which leads to the slow development of electronic information technology. Therefore, in order to solve the difference between electronic information cities, we should adjust measures to local conditions, develop the scientific and technological level among cities, and increase the extraction of electronic information features, so as to promote the development of electronic information technology among cities.

In modern production and life, people have a high degree of application of electronic information technology, which mainly involves satellite communication, wireless communication, optical fiber communication, and other aspects. These are the main forms of electronic information technology at this stage. Due to the increasing application of optical fiber communication, it will gradually replace the cable used in the traditional electronic information transmission link. Therefore, it will become an important

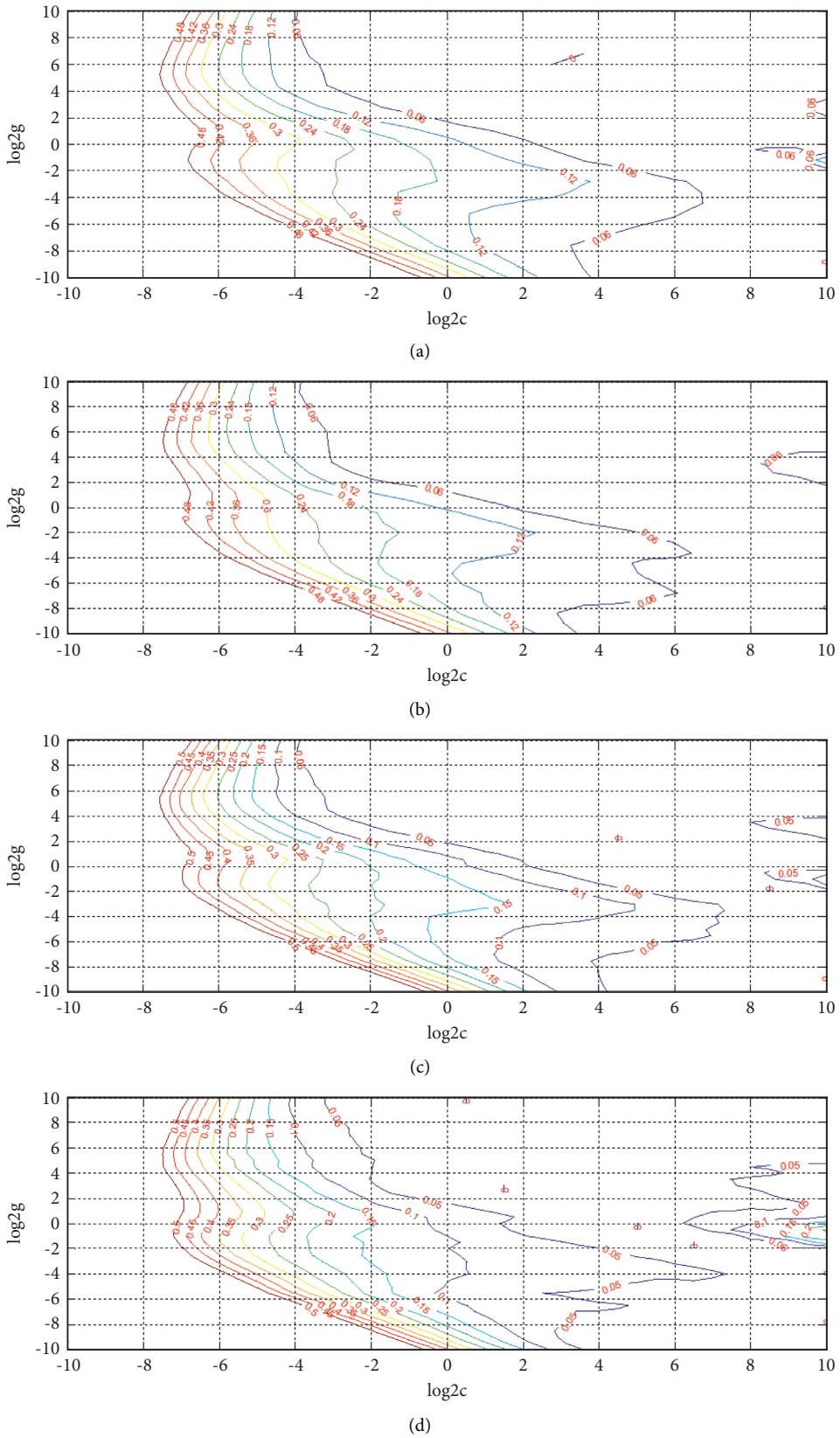

Figure 4: Electronic information distribution among different cities. (a)Beijing, (b)Shanghai, (c)Chongqing, (d)Tianjin.

electronic information extraction medium and promote the information transmission speed in the process of electronic information transmission. At the same time, the electronic information extraction method is in continuous research and development and innovation, and the coverage of mobile communication itself is becoming wider and wider. Therefore, the full use of electronic information extraction technology is conducive to the sorting and analysis of various data, so as to promote the development and application of domestic electronic information technology. However, the recognition accuracy in the process of electronic information extraction needs to be comprehensively and fully studied to improve the accuracy of electronic information, so as to ensure the overall application level of electronic information technology.

Figure 5 shows the recognition accuracy of the feature subset of electronic information between different cities based on the statistical correlation algorithm. It can be seen that with the increase of the number of electronic information feature subsets, the recognition accuracy of electronic information features between different cities gradually decreases. When the number of electronic information feature subsets reaches 6, the recognition accuracy between different cities decreases rapidly. Among them, the recognition accuracy of electronic information feature subsets in Beijing is relatively high and decreases slowly, followed by Shanghai and Chongqing, and the recognition accuracy of electronic information feature subsets in Tianjin is the lowest. The main reason is that there are more colleges and universities in Beijing and more researchers on the feature subset of electronic information, which is conducive to the improvement of recognition accuracy. However, Shanghai has the second best educational resources and its scientific and technological level is also developed, which can better promote the improvement of recognition accuracy of feature subset of electronic information. The university resources and scientific and technological level in Tianjin are relatively weak, which is not conducive to the improvement of its recognition accuracy. Therefore, the recognition accuracy of electronic information feature subset is the lowest and the decline speed is fast. Therefore, in order to better improve the recognition accuracy. We should develop the scientific and technological level and electronic information technology between cities according to local conditions, and carry out regular training for scientific and technological personnel to promote the exchange of electronic information science and technology personnel. In addition, the application of electronic information technology should be increased, improve its recognition accuracy, and promote the extraction of electronic information features.

In the process of electronic information extraction, computer system is extremely important. For computer, processor is the core content, which will directly affect the overall processing speed of electronic information extraction and the actual reserve content of electronic information. Computer is an important tool for people to work in the new era. At the same time, it has also become an important medium for people to extract electronic information. At present, people's requirements for computers are increasing.

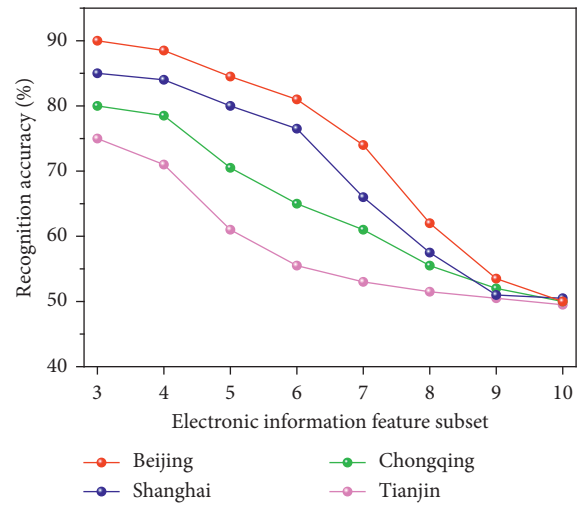

Figure 5: Recognition accuracy of feature subset of electronic information between different cities.

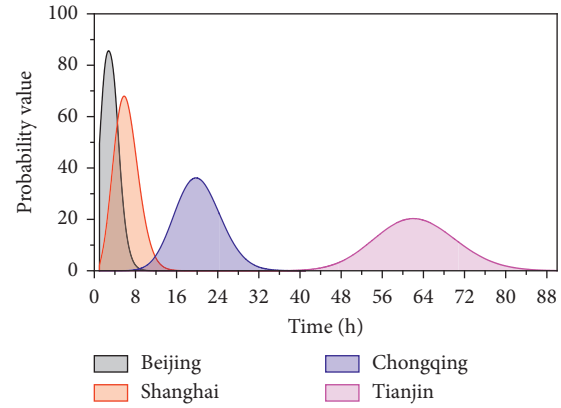

Figure 6: Probability value of electronic information characteristics over time between different cities.

In the future development of computers, multicore, small volume, and personalization will become the main direction. The development of computer processor towards multicore can better meet people's application needs of a large number of electronic information technology. Therefore, in order to better study the impact of electronic information feature extraction methods on people's actual life, and clarify the development of electronic information feature extraction technology in the future. Based on the statistical correlation algorithm, the change trend of electronic information features between different cities over time is counted.

The probability value of electronic information characteristics between different cities over time based on statistical correlation algorithm is shown in Figure 6. It can be seen that the probability of Beijing's electronic information characteristics is very high in a very early time, and the probability value is more than 50. The probability of Shanghai's electronic information characteristics with time follows closely, and the probability value is about 30 lower than that of Beijing. Tianjin has the lowest probability of electronic information characteristics changing with time,

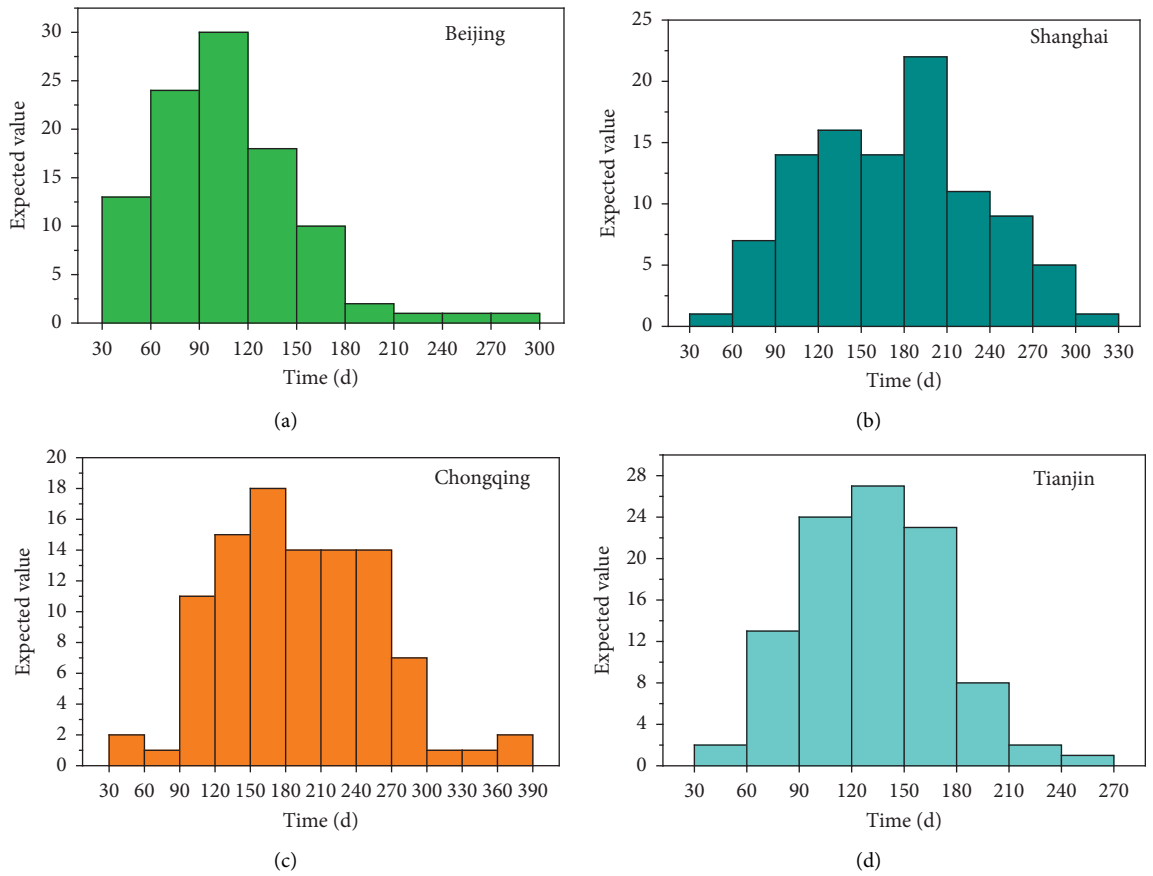

Figure 7: Expectation value of electronic information extraction between different cities. (a) Beijing, (b) Shanghai, (c) Chongqing, and (d) Tianjin.

and the latest occurrence time, and the probability value is also low, about 8. The main reason for this is that the development of electronic information technology in Beijing and Shanghai has been very mature and has a high level of science and technology, so its development probability appears earlier, while the electronic information technology in Tianjin still has a lot of development space, and its probability peak will appear later. Generally speaking, the characteristic probability of electronic information varies with time among cities, which is closely related to the local scientific and technological level. At the same time, the analysis results are also consistent with the above analysis. In general, by studying the probability change of electronic information features between different cities over time, we can know the problems encountered in the process of electronic information feature extraction between different cities, and then take corresponding countermeasures in advance to solve the possible problems, which has a forward-looking role.

In the future , the development prospect of electronic information technology will be gratifying, which will help to promote social progress and development, and improve our living standards and achieve sustainable economic development. However, due to the limitation of the current scientific and technological level, electronic information feature extraction technology needs to consume a lot of manpower and money. Therefore, in terms of electronic information feature extraction methods, we should establish a systematic and perfect normative system to improve the competitiveness and creativity of electronic information technology, so as to better promote the development of our electronic information feature extraction methods.

Figure 7 shows the future development of electronic information extraction between different cities based on statistical correlation algorithm. It can be seen that with the increase of time, the expected value of electronic information extraction methods in the four municipalities increases first and then decreases. Among them, the expected value of electronic information extraction methods in Beijing appeared earlier, reached the highest at 90–120 days, and then showed a rapid downward trend. The expected value of Shanghai electronic information extraction method showed a step-by-step rise and decline, reaching the highest at 180–210 days. The expected value of Chongqing's electronic information extraction method shows the characteristics of long cycle. Although it reaches the highest at 150–180 days, it lasts for a long time and begins to decline after 270 days. The expectation of Tianjin is similar to that of Beijing, but the overall value is low. The main reason for the difference of expected value is that the scientific and technological level and talent ability are different among cities. Therefore, it is necessary to improve the local innovation ability according to local conditions to achieve the key method of obtaining the characteristics of electronic information.

4. Conclusion

Electronic information technology is an important product of human scientific and technological development. It has been widely used in all sectors of society, and its future application and development trend cannot be limited. This study summarizes the current situation of electronic information, establishes an algorithm based on statistical correlation, and studies the feature extraction method of electronic information according to this algorithm. Finally, the algorithm based on statistical correlation is applied to the feature extraction of electronic information in Beijing, Shanghai, Chongqing, and Tianjin. The situation of electronic information among cities is compared, and it is proposed that the development level of science and technology should be adjusted to local conditions to obtain the feature extraction method of electronic information, which provides some experimental and empirical support for the feature extraction method of electronic information.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper.

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