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Retraction

Retracted: Intelligent Decision Support System of Emergency Language Based on Fog Computing

Mathematical Problems in Engineering

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] L. Wang, "Intelligent Decision Support System of Emergency Language Based on Fog Computing," *Mathematical Problems in Engineering*, vol. 2021, Article ID 6611501, 11 pages, 2021.

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Research Article

Intelligent Decision Support System of Emergency Language Based on Fog Computing

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In recent years, various emergencies have frequently occurred worldwide, which has forced relevant service departments to pay more attention to decision-making and emergency management. Since emergency events are characterized by complex environments, unstable events, and time constraints, events usually involve multiple factors and promptly correct errors in the decision-making process. In fact, in many cases, emergency decision-making needs to select an optimal one from multiple alternatives for execution. The fog algorithm decision-making method can solve the problem of optimal solution selection, and it has been widely used in many fields. This article evaluates the emergencies that have occurred in the past 10 years. The evaluation indicators include direct economic loss, indirect reputation loss, ecological environment indicators, and healthy living indicators. The first two are cost-based indicators. The index value of direct economic loss and indirect reputation loss is as small as possible, while the index value of ecological environment index and healthy living index is the larger the better. Among the many selected emergencies, only the index evaluation scores of fires are reliable ($P < 0.01$), and the evaluation scores of other emergencies belonging to natural disasters are a bit wrong ($P > 0.05$). The reason for this may be that the direct economic losses caused by natural disasters are not well counted, and the families involved and the environment are too wide. Therefore, the emergency language intelligent decision support system based on fog computing has a good development prospect.

1. Introduction

With the advent of the information age, the development of computers and the Internet has greatly changed people's lives. New forms of entertainment and education using various information and image technologies have emerged one after another. The emergence of children's learning games is undoubtedly a milestone in the history of the development of children's education. It has brought great freedom and fun to children's learning. How to systematically formulate emergency decision-making methods after emergencies is the goal and urgent task faced by emergency experts and scholars in various countries in the field of emergency decision-making. Accurate and efficient emergency decision-making can not only deal with the emergencies that occur at this time and minimize the loss of life and property but also be used as a historical reference to provide effective suggestions for the handling of similar emergencies in the future. The problem of emergency decision-making in emergencies is actually a multiobjective decision-making problem, that is, using a variety of reasonable and effective evaluation indicators or evaluation targets to measure the pros and cons of multiple emergency alternatives and finally making decisions based on the comprehensive performance of each alternative [1].

As a federal country with a vast territory and frequent natural disasters, the United States has unified management of more than 100 emergency management agencies across the country and established the United States federal emergency management agency to respond to various natural disasters and emergencies and coordinate various departments of the federal government. European and American countries have established emergency management systems and emergency management information platform systems that are in line with their own actual conditions to achieve efficient and orderly development of emergency management [2]. Lu conducted research on public health emergencies of acute epidemic diseases and pointed out that it is necessary to strengthen the coordination and cooperation of emergency departments and strengthen management accountability, so as to improve the ability to respond to such emergencies [3]. Darren analyzed the changing trends and patterns of dynamic natural risks, man-made risks, and disaster vulnerabilities and, on this basis, studied emergency policies and emergency plans [4]. Marie analyzed the indicators of railway emergency management statistics, constructed an emergency management evaluation index system, and established an emergency management evaluation model with an improved factor analysis method [5].

Our country is at the extreme starting point of socialist construction. During the period of rapid social and economic development, natural disasters and mass emergencies occur frequently, especially the occurrence of SARS and the 2008 snow disaster, which greatly touched our country's fragile emergency management system. The research and development of the emergency management and command system for emergencies in our country is relatively late, but after unremitting efforts, most of the existing emergency management and command systems can collect, transmit, and share information resources and realize multiple communications. Bouzekri A built an emergency response model based on a conventional manpower model and developed a multiagent model of emergency response organization behavior [6]. Test simulations were conducted through actual drill scenarios. And put forward some suggestions for the current emergency system [7]. Lin designed the planning form of hierarchical network planning and used this method to study the terrorist attack incidents [8]. Manu and Thalla comprehensively studied the emergency group decision-making technology of railway emergencies and, combined with the characteristics of railway emergency decision-making, proposed the realization method of this technology [9].

In this article, emergencies are subdivided and organized according to the idea of secondary events, and the fog algorithm decision-making method is extended to apply to secondary events. Taking into account the state changes of secondary events derived from primary emergencies, it gets closer in the actual application background, the concept of "possibility" containing interval numbers that can be compared with each other is given, and the schemes with possible degrees are sorted to ensure the scientificity and rationality of the final decision result. In the emergency decision-making model constructed in this article, full consideration is given to the realistic background and the ambiguity of information that accompany the occurrence of secondary emergencies during emergencies, ensuring the scientificity and rationality of the decision-making process and making the decision-making results more reliable and correct.

2. Intelligent Decision Support System of Emergency Language Based on Fog Computing

2.1. Multiobjective Decision

2.1.1. Connotation of Multiobjective Decision-Making. Multiobjective decision-making is a new research field of decision-making that integrates several disciplines such as operations research, economics, and psychology. Decision analysis is the process of selecting the best solution from multiple alternatives to solve the problems that may arise in the system design, design, and construction phases now or in the future. However, many of the socioeconomic decision-making issues we are currently facing, even the smaller practical issues in daily life, are usually multiobjective rather than personal. Interactions and contradictions between multiple goals in decision-making problems often make it difficult for decision-makers to make decisions easily. In an image with constantly changing gray values, if there is a point that is very different from the gray values of adjacent pixels, the point is likely to be noise. This solution was replaced by a satisfactory solution. Therefore, multiobjective decision-making means that the problem to be decided involves multiple goals or multiple indicators. Decision-makers need to continuously coordinate multiple goals or multiple indicators in decision-making under the constraints of various resource conditions to choose a relatively satisfactory solution [10] so that the program can make all relevant decision-making target values reach the decision-making process in a satisfactory state considered by the decision-makers.

2.1.2. Features and Advantages of Multiobjective Decision-Making. (1) Characteristics of Multiobjective Decision. The wireless network control system is composed of a wireless communication network, controller, and controlled objects [11]. Most of the objects controlled are continuous systems, while the controllers in network control systems are discrete systems, which makes it difficult for decision-makers. Directly use the same measurement unit and measurement standard to measure and compare multiple decision-making goals; decision-making goals are often mutually exclusive and contradictory; that is, an alternative plan usually cannot achieve the optimal value of a goal. Ensure that other decision-making goals are in the most satisfactory state or make one goal the most satisfactory but make another decision-making goal worse; There are both quantitative indicators and qualitative indicators. The former is described by data, while the latter is described by words, that is, qualitative and quantitative indicators coexist in multi-objective decision-making. For those qualitative indicators, they need to be quantified, so as to facilitate decision-makers to consider alternatives according to the decision rules.

(2) Advantages of Multiobjective Decision-Making. The role of decision-makers in the decision-making process is strengthened; the alternatives obtained in the decision-making process are more abundant and involve a wider range of fields; the model of the decision-making problems and the intuition of decision-making problems will be more realistic.

2.1.3. Multiobjective Decision-Making Process. It can improve system reliability and other benefits. The cost of transmitting information for remote control and remote operation is very low. Instead of using analog signals, digital signals are used for transmission on a digital network. At this stage, the decision-maker and analysis will convert the general goals proposed in the initial stage into detailed and specific decision goals. In addition, the elements, restrictions, and constraints in the entire system must also be clearly defined. Finally, all the requirements must be given. Alternatives for feasibility conditions for decision-making: at this stage, decision-makers and analysts mainly clarify the relationship between decision goals and various alternatives, determine the key variables in the system, and establish models. These models usually include mental models, graphical models, and physical models. Models, mathematical models, and so forth: in addition, decision-makers and analysts also need to estimate various parameters that will be used in the model. The main work of decision-makers and analysts at this stage is divided into three parts. The first is to use the model of the previous stage to generate alternatives. The second is to use relevant decision rules to rank the pros and cons of various alternatives. The third is to select satisfaction. Executable program: put the satisfactory plan selected in the previous stage into practice and conduct real-time tracking and evaluation of the implementation effect of the satisfactory plan. The multiobjective decision-making process is shown in Figure 1.

2.2. Common Resource Scheduling Algorithms in Fog Computing

2.2.1. Algorithms Adapted to User Mobility. Let μ_0 represent the computing power of the mobile edge, $D(\lambda_t)$ represent the computing delay requirements, $\overline{C}(\mu_0)$ represent the average system cost, and μ_t represent the computing power of the cloud resources leased in the t time interval, and μ_t^* represent the cloud resources used in each time interval. For a given edge configuration μ_0, the optimal solution is

$$\mu_t^*(\mu_0)=\begin{cases}0, & \mu_0\geq\lambda_t+\dfrac{1}{D(\lambda_t)},\\[2ex] f_t^u(\mu_0), & 0<\mu_0<\lambda_t+\dfrac{1}{D(\lambda_t)},\\[2ex] \lambda_t+\dfrac{1}{D(\lambda_t)-d}, & \mu_0=0.\end{cases}\tag{1}$$

The formula for calculating the average system cost gradient is as follows:

$$\left[\overline{C}(\mu_0)\right]'=\frac{c_P}{T}\sum_{i=j}^{T}\left[f_{\nu(i)}^u(\mu_0)\right]'+c_0\theta\mu_0^{\theta-1}.\tag{2}$$

The formula for solving the best computing power of the mobile edge is

$$\mu_0^*=\arg\min\left\{\overline{C}(\mu_0)|\mu_0\in\left\{\mu_0^1,\ldots,\mu_0^{T+1}\right\}\right\}.\tag{3}$$

2.2.2. Algorithm to Balance Task Completion Time and Price. In order to fully understand the effect of time delay on the control system, we select a simple control object, analyze the step response curve of the system under different time delay conditions, and analyze the effect of time delay on the control system. Suppose the state space expression of the controlled system is

$$\begin{aligned}&\min=\sum_{i=1}^{m}d_i^2,\\ &\begin{cases}y_j^*=\begin{cases}\max y_{ij}, & j\text{ is the benefit index},\\ \min y_{ij}, & j\text{ is the benefit index},\end{cases}\\ d_i^2=\displaystyle\sum_{j=1}^{n}\left(y_{ij}\lambda_j-y_j^*\lambda_j\right)^2, \quad i=1,2,\ldots,m,\end{cases}\\ &\begin{cases}\text{s.t.}, & \displaystyle\sum_{j=1}^{n}\lambda_j=1,\\ \lambda_j>0, & j=1,2,\ldots,n.\end{cases}\end{aligned}\tag{4}$$

According to the comprehensive weight calculation formula,

$$\begin{aligned}\omega_j&=\frac{\lambda_j\mu_j}{\sum_{j=1}^{n}\lambda_j\mu_j}, \quad 1\leq j\leq n,\\ Z&=\left(z_{ij}\right)_{m\times n}=\left(\omega_jy_{ij}\right)_{m\times n}.\end{aligned}\tag{5}$$

According to the weighted standardized matrix, the ideal solution and the negative ideal solution are obtained:

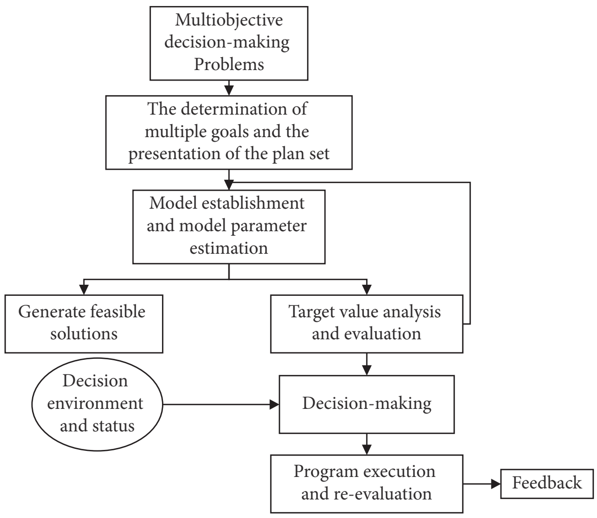

FIGURE 1: Multiobjective decision flow chart.

$$z_j^+ = \begin{cases} \max z_{ij}, & j \text{ is the benefit index}, \\ \min z_{ij}, & j \text{ is the benefit index}, \end{cases}$$
$$z_j^- = \begin{cases} \max z_{ij}, & j\text{is the benefit index}, \\ \min z_{ij}, & j \text{ is the benefit index}. \end{cases} \tag{6}$$

The distance from the alternatives to the ideal solution and the negative ideal solution:

$$S_i^+ = \sqrt{\sum_{j=1}^{n} \left(z_j - z_j^+\right)^2}, \quad i = 1, 2, \ldots, m,$$
$$S_i^- = \sqrt{\sum_{j=1}^{n} \left(z_j - z_j^-\right)^2}, \quad i = 1, 2, \ldots, m. \tag{7}$$

In the above formula, S_i^+ is the distance from the i scheme to the ideal solution; S_i^- is the distance from the i scheme to the negative ideal solution. The relative closeness of the alternatives:

$$C_i = \frac{S_i^-}{S_i^+ + S_i^-}, \quad i = 1, 2, \ldots, m. \tag{8}$$

2.2.3. Algorithms to Reduce Task Completion Time. S_j represents the fog computing embedded system storage system of server $(j \in J)$, and S_t represents the image size of task $t \in T$:

$$x_{ij} = \begin{cases} 1, & \text{if the task image } t \in T \text{ is stored in server } j \in J, \\ 0, & \text{otherwise}, \end{cases}$$
$$\sum_{j \in J} x_{ij} = \Omega, \quad \forall t \in T. \tag{9}$$

q_{til} represents the probability that the I/O request of a task $t \in T$ will be delivered from the client $i \in I$ to the storage server $j \in J$. The introduction of τ_d represents the maximum I/O time of all tasks. The problem of minimizing the maximum I/O time can be described as

$$\begin{aligned} &\text{MINLP} - \text{IO}: \\ &\min: \tau_d. \end{aligned} \tag{10}$$

According to the types of the minimum and maximum input/output time problems, the minimum and maximum calculation time problems can be reduced to linear programming problems by converting the minimum-maximum problem to the maximum-minimum problem. Introducing $\overline{\tau}_c = 1/\tau_c$, the problem is described as

$$\begin{aligned} &\text{LP} - \text{Comp}: \\ &\max: \overline{\tau}_c. \end{aligned} \tag{11}$$

The workload and I/O request or job processing on one server can be freely transferred to another server. Therefore, consider the mapping between the first and second stage server protocol and the final solution:

$$m_{hh'} = \begin{cases} 1, & \text{If } h' \text{ is mapped to server } h, \\ 0, & \text{otherwise}. \end{cases} \tag{12}$$

2.3. Emergency Decision-Making Algorithm Based on Improved Group Decision-Making Method. The way the computer feeds the calculation results to the individual is a way of exchanging information that performs communication between the individual and the computer. The human-computer interaction function of the computer operating system is an important indicator of whether the computer system is advanced. When dealing with emergency situations, if there is no scientific and systematic emergency decision-making method, emergency rescue operations cannot be carried out in time. If relevant departments can make quick and effective decisions based on the development and changes of emergencies, this will play a decisive role in the effectiveness of the emergency response.

2.3.1. Traditional Gray System. Because part of the information in the gray system is unknown, people often explore and solve problems by mining and using the value of the known information. Group decision-making always follows the principle of "the minority obeys the majority." Using the expert's decision matrix to determine the consistency of the expert is the key to solving the expert's weight. In the process of determining and adjusting the weight of experts, the information is often incomplete and uncertain, so, at this time, the gray system theory has become the first choice to deal with such problems. In actual operation, it is necessary to first calculate the individual expert decision matrix and aggregate the individual expert decision matrix into the group decision result.

2.3.2. Deficiencies in Determining the Weight of Experts Based on Gray Relational Analysis

(1) Principle of "the Minority Obeys the Majority." Group decision-making always follows the principle of "the minority obeys the majority." According to this principle, the expert's decision-making power is reflected in the consistency of the decision-making results of the expert and the decision-making group. When he is consistent with the decision-making results of the group decision-making, he has more large decision-making power; otherwise, its decision-making power will be reduced. However, the principle of "the minority obeys the majority" is not always correct. We cannot rule out the special case of a minority making correct decisions and a majority making wrong decisions. At this time, if the traditional group decision-making method is used to simply eliminate individual subjective differences and reflect the will of the group, then the decision-making group will make wrong decisions.

(2) Blindness in Selecting Experts. Suppose that when dealing with emergencies, the relevant department has an expert database, and each time, a part of the experts are randomly selected from the expert database to complete group decision-making. As the experts of the decision-making group come from different fields and different industries, professional barriers and blind spots may cause them to make mistakes in decision-making in areas that they are not good at. At this time, the credibility of their decision-making results is very low. This is traditional group decision-making. Factors not considered by the law.

(3) Does Not Consider the Performance of Experts in Historical Decision-Making Events. Traditional group decision-making hardly readjusts the weight of experts based on the decision-making results after the decision, nor does it take it as consideration into the process of adjusting the weight of experts in the next emergency, that is to say, traditional group decision-making. The process is to consider each emergency as a separate event. But in fact, the development of things will not be unrelated. The past decision-making results can measure the decision-making level of the experts in the expert group and examine the decision-making effects of all relevant decisions of these experts in recent years.

2.3.3. Ideas for Improving Expert Weight Adjustment Algorithm

(1) Fully Consider the Correct Rate of Experts' Historical Decisions. Before the expert team makes emergency decisions, due to the constraints of objective conditions, the possible implementation effects of each plan are also unknown. However, after the implementation of the program is over, the expert group can evaluate and score the performance of the program. In order to ensure the objectivity of the evaluation results of the expert group, a completely different group of experts can be selected in the expert database to score the plan implementation effect after the emergency decision is over. From the emergency decision-making cases handled in the past, we can dig out a lot of valuable information for the current case. The correct rate of the experts' historical decision-making is one of the most valuable research cases.

(2) Use Event Type as a Consideration When Drawing Experts. Suppose the decision-making group makes a decision by randomly selecting an expert group from the expert database, but due to the limitations of each expert's knowledge and expertise, it may be easy for them to make correct decisions in their areas of expertise, and easy to make in areas that they are not good at the wrong decision. In order to improve the accuracy of decision-making, the type of emergency can be considered as a factor.

(3) Prioritize Recent Historical Emergencies. Things are constantly evolving and changing. The expert may have a low rate of correct decision-making for a certain type of event, but with the accumulation of experience and the addition of knowledge, his decision-making accuracy rate will change, it may become higher and higher, or it may become lower. But it cannot be set in stone. We need to look at the problem from a developmental perspective. When calculating the correct rate of the expert's historical decision, we must give priority to the correct rate of decision-making at the most recent time point. The closer to the time point of decision-making behavior, the greater the role and value it plays. When an expert's case base is small, the advantages of this approach may not be obvious, but when an expert's case base is large and he has made many similar decisions, the advantage of this approach will be as follows: it is obvious that it is too much to aggregate all the historical decision-making accuracy rates of experts, which not only brings operational difficulties but also leads to the low credibility of the final aggregated historical decision-making accuracy rates.

3. Intelligent Decision Support System of Emergency Language Based on Fog Computing

3.1. System Architecture Design. The system structure should include three aspects: application layer, service layer, and data layer. The main task of the emergency decision-making system based on fog computing is to make inference decisions about emergencies and establish and maintain a case library. The service layer is mainly to realize the service functions of the system, including system case reasoning, case management, and system help services. The establishment of the service layer is realized by the development tools of Visual Basic 6.0. The data layer includes the rule library and the case library, and the case library is that in order to store cases, the rule base is used to implement certain functions of case reasoning and management. The establishment of the data layer is implemented by SQL 2008 database. The architecture of the system is shown in Figure 2.

3.2. Test Subject. The core algorithm of the emergency language intelligent decision support system designed in this paper uses fog computing. Before the experiment, the system

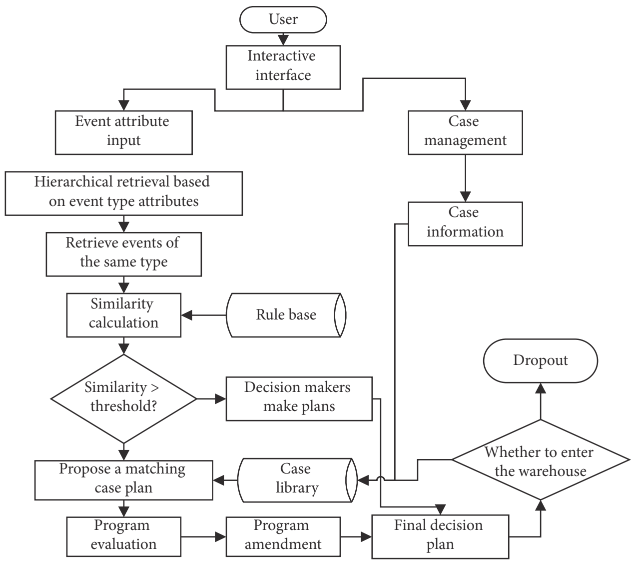

Figure 2: Workflow chart of emergency decision-making system for emergencies.

is trained for events. Six types of emergencies include earthquakes, typhoons, tsunamis, floods, and a total of 4000 incidents of landslides and fires, and these training data were entered into the database. Then, evaluate the emergencies that have occurred in the past 10 years. The evaluation indicators include direct economic loss, indirect reputation loss, ecological environment indicators, and healthy living indicators. The index value of direct economic loss and indirect reputation loss is as small as possible, while the index value of ecological environment index and healthy living index is the larger the better. At the same time, five emergency options are obtained for emergency events. After multiple rounds of rapid discussions, five emergency options are given, and the estimated values under each evaluation indicator perform data analysis.

3.3. Experimental Method. There are many data standard processing methods, but different data standardization methods will have a certain impact on the evaluation results of the system. For the positive indicator standardization method,

$$y_{ij} = \frac{x_{ij} - \min\left\{x_{ij}\right\}}{\max\left\{x_{ij}\right\} - \min\left\{x_{ij}\right\}}. \tag{13}$$

For the negative index standardization method,

$$y_{ij} = \frac{\max\left\{x_{ij}\right\} - x_{ij}}{\max\left\{x_{ij}\right\} - \min\left\{x_{ij}\right\}}. \tag{14}$$

3.4. Statistical Data Processing Method. SPSS23.0 software was used for data processing, the count data was expressed in percentage (%), k is the number of data in this experiment, σ^2 is the variance of all survey results, and $P < 0.05$ indicates that the difference is statistically significant. The formula for calculating reliability is shown in

$$a = \frac{k}{k-1}\left(1 - \frac{\sum \sigma_i^2}{\sigma^2}\right). \tag{15}$$

4. Emergency Language Intelligent Decision Support System Based on Fog Computing

4.1. Evaluation Index System Based on Index Reliability Testing. Reliability refers to the stability and reliability of the questionnaire. This article adopts the α coefficient method created by Cronbach. The α coefficient can be obtained by Reliability Analysis in SPSS software. It is generally believed that the α coefficient above 0.8 indicates that the effect of the index setting is very good, and above 0.7 is also acceptable. Here, we analyze the reliability of each type of object, and the reliability index we choose for each type of object is slightly different. The results are shown in Table 1.

It can be seen from Table 1 that the direct economic loss, indirect reputation loss, ecological environment indicators, and healthy living indicators have an acceptable impact on this experiment ($\alpha > 0.7$), and the environmental, social and economic impacts are within acceptable limits and meet the prerequisites for starting the experiment.

4.2. Emergencies in the past 10 Years

4.2.1. Number of Emergencies in the past 10 Years. We first analyze the number of earthquakes, typhoons, tsunamis, floods, landslides, and fires that have occurred in the past 10 years. The first five emergencies are natural disasters, and the last one includes natural disasters and urban disasters. The results are shown in Table 2; we make a line chart based on this result, as shown in Figure 3.

Figure 3 shows the vigorous development of water conservancy projects in my country since ancient times, and modern flood disasters are becoming less and less, unless continuous heavy rains will cause sudden events like floods; natural emergencies like earthquakes, typhoons, and tsunamis are not for humans. There are no rules to control, and fires include natural disasters and urban disasters. The number of accidents per year has fluctuated. But on the whole, the annual number of fire accidents in our country has shown a continuous increase momentum.

4.2.2. Emergency Level. According to the nature, controllability, severity, and scope of different types of emergencies, natural disasters, accidents, and public health events are divided into four levels: particularly serious, serious, large, and general. At the same time, according to the emergency degree, harm degree, and development trend caused by emergencies, their early warning levels are divided into four levels. The results are shown in Table 3. We make a doughnut chart based on this result, as shown in Figure 4.

It can be seen from Figure 4 that sudden events such as earthquakes are natural disasters. There are countless large

Table 1: Summary table of reliability test results.

Category	Index combination	Alpha coefficient (α)
Earthquake	Direct economic loss Indirect reputation loss Ecological environment indicators Healthy living index	0.7691
Typhoon	Direct economic loss Indirect reputation loss Ecological environment indicators Healthy living index	0.8332
Tsunami	Direct economic loss Indirect reputation loss Ecological environment indicators Healthy living index	0.7871
Landslide	Direct economic loss Indirect reputation loss Ecological environment indicators Healthy living index	0.7614

Table 2: The number of emergencies in the past 10 years.

Year	Earthquake	Typhoon	Tsunami	Flood	Landslide	Fire
2011	46	7	3	3	23	96
2012	21	9	5	1	27	91
2013	27	8	4	2	31	88
2014	40	13	6	0	29	107
2015	41	7	6	1	19	87
2016	40	11	6	1	22	112
2017	42	17	3	1	17	79
2018	78	9	3	0	27	104
2019	68	10	4	1	42	94
2020	42	8	2	2	25	88

and small earthquakes every year. In particular, major earthquakes are rare. And sudden events such as typhoons, tsunamis, and floods are particularly serious once they occur. Incidents of the general level rarely occur. Natural disasters such as landslides are the same as earthquakes. There are many occurrences every year, causing very few particularly significant impacts. Fires, including natural disasters and urban disasters, are more common. Natural disasters are considered special. Major emergencies, if it is an urban disaster, will cause a more general impact.

It can be seen from Figure 5 that, in order to minimize the losses caused by the frequent occurrence of emergencies, relevant decision-makers should quickly make effective emergency decisions to ensure the safety of people's lives and property. Therefore, emergency decision-making has become the key core issue of emergency management. In life practice, people have long recognized that prevention, prediction, and preplanning are effective ways to reduce or eliminate various emergencies, especially for major emergencies. The correctness of emergency decisions is a key factor in the success of their actions. With the progress of mankind and the rapid development of the social economy, decision-making issues have become more and more complex. Emergency decision-making, as one of the important decisions, has become particularly important.

4.2.3. Assessment Index for Emergencies in the past 10 Years. Evaluate the emergencies that have occurred in the past 10 years. The evaluation indicators include direct economic loss, indirect reputation loss, ecological environment indicators, and healthy living indicators. Direct economic loss and indirect reputation loss are used as cost indicators, the smaller the index value, the better. Ecological environment index and healthy life index are good indicators, and the larger the index value, the better. The evaluation index of the event is analyzed, and the results are shown in Table 4. We make a line graph based on this result, as shown in Figure 6.

It can be seen from Figure 6 that, among so many selected emergencies, only the index evaluation scores of fires are reliable ($P < 0.01$), and the index evaluation scores of other emergencies belonging to natural disasters are a bit wrong ($P > 0.05$). The reason for this may be that the direct economic losses caused by natural disasters are not good for statistics, and the families involved are too extensive in environmental aspects. There is no reputation loss. The ecological environment indicators can be compared by the comprehensive score of the postdisaster environment today accurately. Healthy living can also be comprehensively scored according to the victim's subsequent living conditions and physical condition, which is also more accurate.

4.3. Decision-Making on Selection of Wind Farm Emergency Plan. In order to minimize the economic losses and casualties caused by the sudden accident, reduce the negative social impact, and maintain social stability in a wind farm sudden power equipment accident, the wind farm insisted on unified leadership, division of labor, strengthened linkage, and rapid in response, two experts in the industry and two senior staff were invited to conduct a comprehensive evaluation of the emergency incident based on the four indicators of the nature, severity, controllability, and scope of the incident. From three emergency plans, choose the most suitable plan among the results, and the experimental results are shown in Tables 5 and 6. We make an area map based on this result, as shown in Figure 7.

It can be seen from Figure 7 that the weight of experts and senior actors adjusted according to the traditional group decision-making method based on gray relational theory is $\lambda_{1n}^* > \lambda_{2n}^* > \lambda_{3n}^* > \lambda_{4n}^*$. It proves that it is necessary to consider the correct rate of historical decision-making as a consideration in adjusting the weight of experts and senior staff. As the concentration of salt and pepper noise increases, the average Gaussian filter and filter are less capable of handling salt and pepper noise. Medium filtering still does not perform well in terms of edge noise. The medium filter based on partial differential has the best effect on the noise of salt and

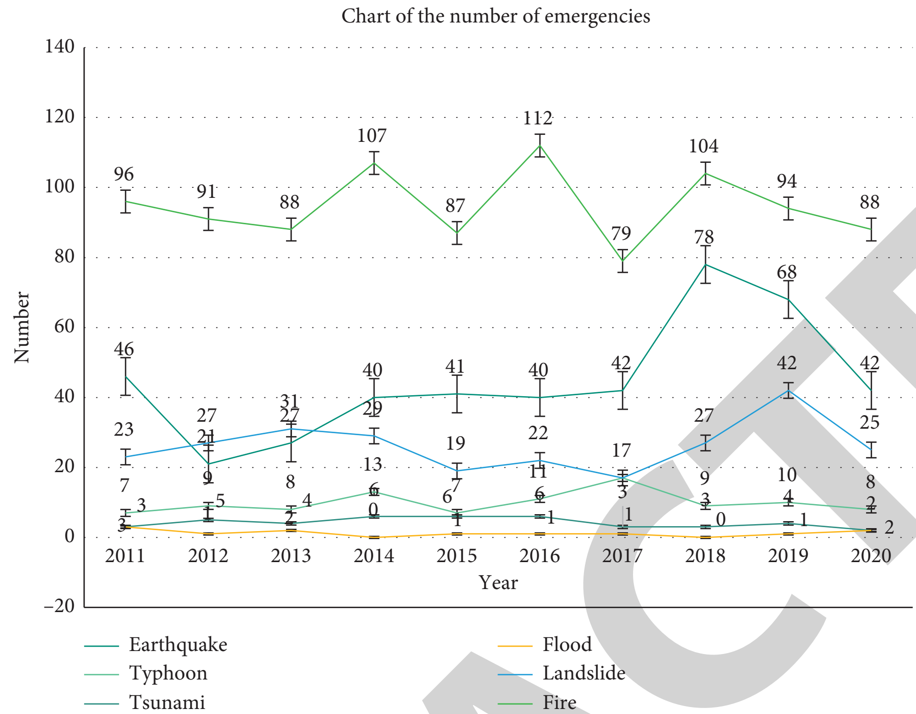

Figure 3: Chart of the number of emergencies in the past 10 years.

Table 3: Emergency rating table.

Level	Earthquake	Typhoon	Tsunami	Flood	Landslide	Fire
Particularly significant	7	73	31	8	8	42
Major	14	12	5	2	18	19
Larger	19	8	4	1	32	28
General	402	6	2	1	204	857

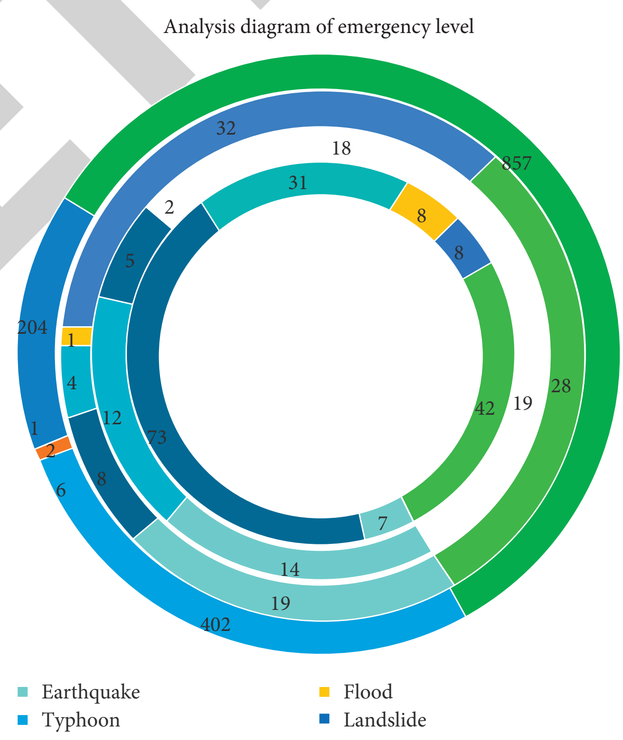

Figure 4: Analysis diagram of the emergency level.

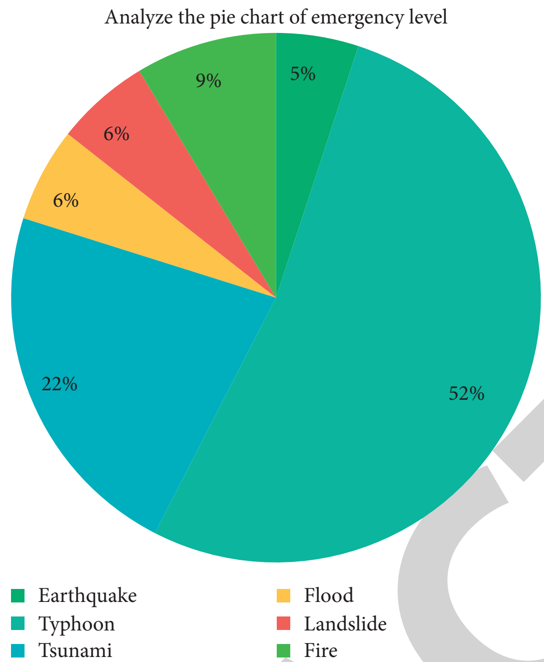

FIGURE 5: Analyze the pie chart of the emergency level.

TABLE 4: Depression data analysis table.

Evaluation index	Earthquake	Typhoon	Tsunami	Flood	Landslide	Fire
Direct economic loss	1	0.5	2	2	0.67	0.1
Indirect reputation loss	2	1	3	3	1	0.1
Ecological environment indicators	0.5	0.33	1	1	0.67	1
Healthy living index	0.5	0.33	1	1	0.67	3
P	0.2630	0.4547	0.1411	0.1411	0.8792	0.0001

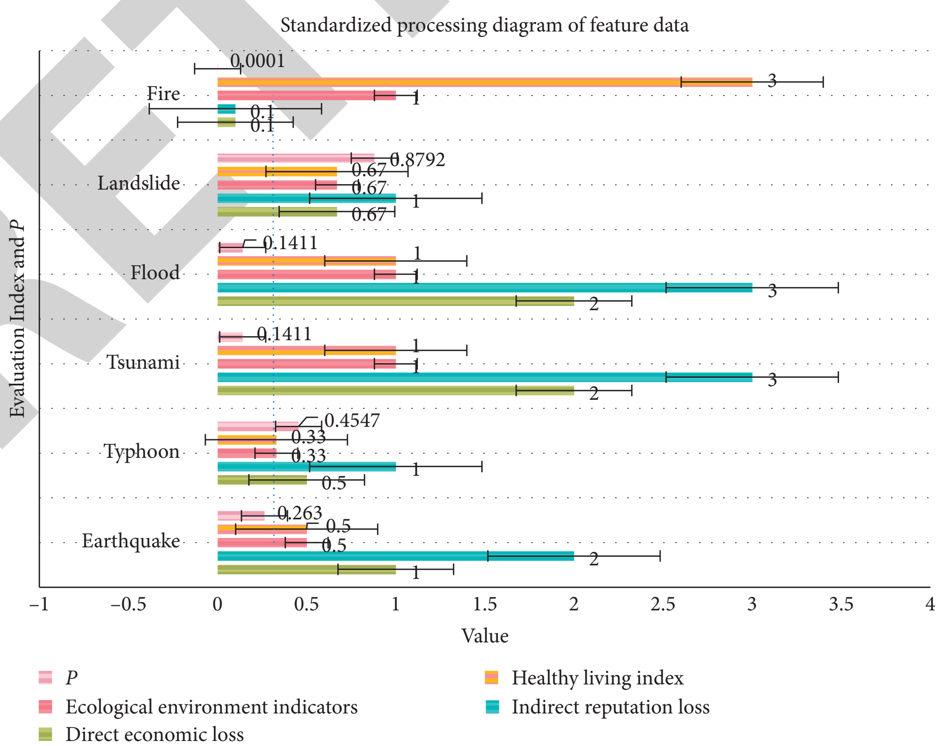

FIGURE 6: Standardized processing diagram of feature data.

Table 5: Two experts' feedback weight and similarity table.

Expert A	λ_{1n}^*	0.411	0.423	0.119	0.168	0.147	0.232	0.742	0.449
	ρ_n	0.4	0.5	0.8	0.2	0.2	0.8	0.4	0.5
Expert B	λ_{2n}^*	0.094	0.041	0.128	0.247	0.355	0.387	0.654	0.754
	ρ_n	0.2	0.3	0.2	0.3	0.5	0.7	0.8	0.4

Table 6: Feedback weight and similarity table of two senior staffs.

Senior staff A	λ_{3n}^*	0.115	0.407	0.205	0.334	0.524	0.571	0.197	0.127
	ρ_n	0.3	0.4	0.6	0.3	0.2	0.2	0.4	0.5
Senior staff B	λ_{4n}^*	0.224	0.347	0.039	0.017	0.576	0.344	0.241	0.357
	ρ_n	0.5	0.5	0.3	0.3	0.5	0.7	0.2	0.5

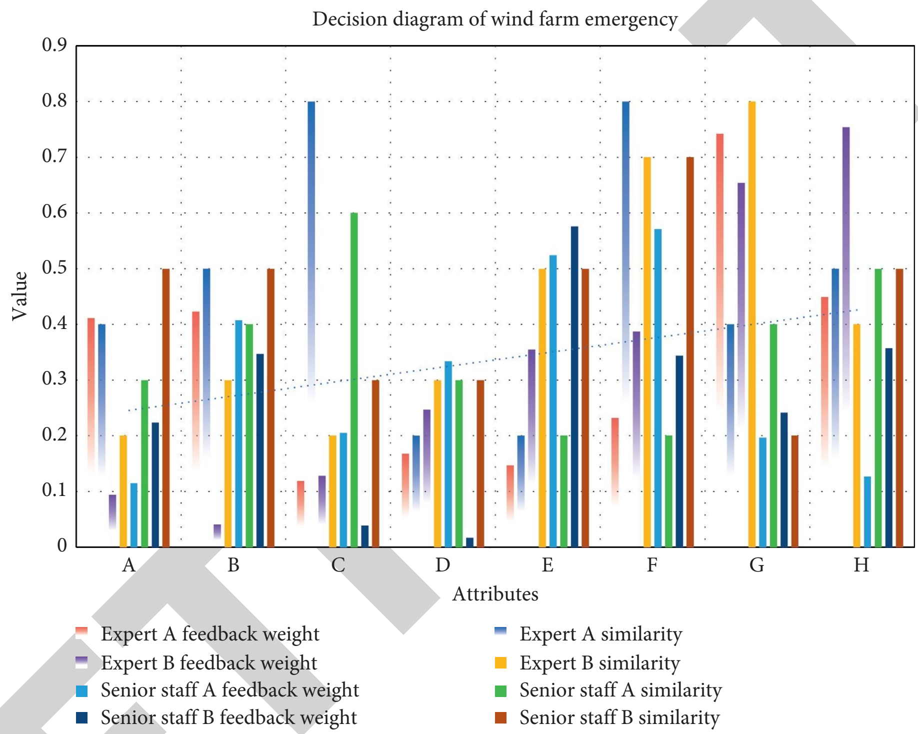

Figure 7: Decision diagram of wind farm emergency plan selection.

pepper. Eye movement data can also show this view. Children in the experimental group, the number of focus points of the main content, and the focus points of the content outside the main body are much higher than those of the control group, with the attention rate reaching more than 95%.

5. Conclusions

Based on the existing research on group decision-making, this paper analyzes the shortcomings of the expert weight determination method in the traditional gray-relational group decision-making method and proposes suggestions for improvement. Then, based on the improved group decision-making method, construct an emergency decision model. A group decision-making expert weight adjustment algorithm based on the gray system theory is proposed, and three shortcomings are proposed in the implementation stage. It is recommended to improve the design response. Based on this, combined with the information provided after the implementation of the emergency plan, the correct rate of historical decision-making is considered to be a factor in adjusting the weight of experts. An expert weight adjustment algorithm based on feedback weight is proposed, and the application of the improved weight adjustment algorithm in emergency decision-making experts is explained in detail. The improved emergency decision-making model is applied to the evaluation and selection of emergency plans for wind farms. Compare the rankings and scores of the group decision plan before and after improvement, and compare the weights of experts and the scores of the projects before and before improvement. It explains the reason for the difference, proves the necessity of using the expert's historical accuracy rate as a checking factor to adjust the weight of the expert, and, at the same time, proves the convenience and practicability of this method.

Aiming at the current problems in emergency decision-making for emergencies and combining the characteristics of fog computing, this paper applies fog computing to emergency decision-making, proposes an emergency-emergency decision-making method based on fog computing, and carries out its key technologies. Research, on the basis of method research, constructed an emergency-emergency decision-making system based on fog computing, which provides a reference for the research work of emergency-emergency decision-making. The retrieval method of emergency cases and the generation method of the emergency plan are studied. In order to improve retrieval efficiency and make retrieval results in line with actual conditions, this paper adopts a dual retrieval mechanism of layered retrieval and the nearest neighbor retrieval. The calculation of attribute similarity should consider the problem of attribute weight. This paper analyzes the advantages and disadvantages of the current commonly used weighting methods and uses the method of combining expert scores and cloud models to weight each attribute. Finally, the generation method and steps of the emergency plan are researched and discussed and verified by case analysis.

For preschool children, parents are the only objects they attach to and trust at this stage. The special physical and psychological characteristics of this stage make them vulnerable to injury. Only under the care of parents can they thrive in physical, mental, and physical aspects. For parents, because of the many difficulties in life and work, it has been a long-term pain in their hearts that they cannot accompany and care for their children well. Analyze the interaction among disaster carriers, risk factors, and vulnerable environments from the perspective of disasters. However, because catastrophe science does not take human factors into consideration, the event will be controlled by human intervention during the development process. If the relevant departments do not carry out the correct emergency response, the situation will develop in a positive direction, and on the contrary, it will move in a negative direction. Therefore, this article analyzes the scenario evolution mechanism through system dynamics and adds elements of human intervention to make the evolution mechanism of environmental emergencies more scientific and realistic. According to the system dynamics method, this article analyzes the three subsystems of environment, event, and intervention. Carry out causality analysis, and obtain the influence of energy input and output in each subsystem on the evolution of disaster scenarios.

Data Availability

No data were used to support this study.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Acknowledgments

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