

Research on Data Sharing of Medical Big Data

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Abstract: The invention disclose a data sharing method of medical big data, which comprise that following steps of: obtaining a first rare case through rarity analysis of medical data in a first medical data share platform; Storing the first rare case and correspondingly generating a first retrieval feature; A first search feature, which obtains a first click amount and a first usage amount in a first preset period; According to the first cloud processor, constructing a first access trend prediction model; Inputting the first click amount and the first usage amount into the first access trend prediction model to obtain a first prediction index; Judging whether the first prediction index is in a preset prediction index; If so, data upload is completed on multiple related medical data sharing platforms. It solves the technical problem that the corresponding medical data sharing method is not intelligent enough based on the particularity of rare cases in the prior art, thus causing isolated circulation of rare cases.

Keywords: Artificial intelligence, Medical care, Big data, Sharing method.

1. Technical Background

With the rapid development of informatization, various medical institutions are also increasing their investment in informatization construction, and the informatization level of the medical system is constantly improving. Opening the information barriers between medical institutions and realizing medical data sharing is an inevitable trend that meets the actual data demand of medical and health industry, and has great application value. Data sharing can fuse the medical information of various medical institutions to form large medical data. However, due to the characteristics of massive medical data, multi-ownership, complexity and security, there is still a big obstacle to the breakthrough of data sharing.

However, in the process of realizing the design technical scheme in this design example, the designer found that the above technology has at least the following technical problems:

In the prior art, due to the particularity of rare cases, the corresponding medical data sharing method is not intelligent enough, which leads to the technical problem of isolated circulation of rare cases.

2. Design Content

By providing the data sharing method of medical big data, the design embodiment solves the technical problem that the corresponding medical data sharing method is not intelligent enough based on the particularity of rare cases in the prior art, thus causing isolated circulation of rare cases, Improve the intelligent calculation level of rare case data processing, and realize the technical effect of rare case information interconnection.

The data share method of medical big data provided by this design embodiment is propose.

1) this design embodiment provide a medical big data sharing method base on artificial intelligence, wherein that method is applied to a medical big data sharing system based on artificial intelligence, and the system is in communication connection with a first cloud processor, and the method comprise the following steps: obtaining information of a first medical data sharing platform; The first medical sharing platform information, Establishing a first platform feature

label; Carrying out rarity analysis on medical data in the first medical data sharing platform to obtain the first rare case; Storing the first rare case and correspondingly generating a first retrieval feature; A first search feature, which obtains a first click amount and a first usage amount in a first preset period; A first cloud processor, Constructing a first access trend prediction model; Inputting the first click amount and the first usage amount into the first access trend prediction model to obtain a first prediction index; Judging whether the first prediction index is in a preset prediction index; If the first prediction index is in the preset prediction index, a plurality of related medical data sharing platforms are obtained, wherein, The multiple related medical data sharing platforms are platforms interconnected with the first medical data sharing platform; According to the first upload instruction, the first rare case is uploaded to the multiple related medical data sharing platforms.

2) This design also provides a medical big data sharing system based on artificial intelligence, which includes: a first obtaining unit for obtaining the information of the first medical data sharing platform; A first construction unit, which is used for the first medical sharing platform information and establishing the first platform feature tag; The second obtaining unit, The second obtaining unit is used for carrying out rarity analysis on medical data in the first medical data sharing platform to obtain a first rare case; A first generating unit, which is used for storing the first rare case and correspondingly generating the first retrieval feature; A third obtaining unit for the first retrieval feature, Obtaining a first click amount and a first usage amount in a first preset period; A second construction unit, which is used for the first cloud processor to construct the first access trend prediction model; A fourth obtaining unit for inputting the first click amount and the first usage amount into the first access trend prediction model to obtain a first prediction index; A first judging unit for judging whether the first prediction index is in a preset prediction index; A fifth obtaining unit for obtaining a plurality of related medical data sharing platforms if the first prediction index is in the preset prediction index, wherein, The multiple related medical data sharing platforms are platforms interconnected with the first medical data sharing platform; A first uploading unit, which is used to upload the first rare case to the multiple related medical data sharing

platforms according to the first uploading instruction.

3) this design provide a medical big data sharing system base on artificial intelligence, which comprises a memory, a processor and a computer program stored in that memory and run on the processor, wherein the processor implements the steps of the method described in the first aspect when executing the program.

3. Technical Effects or Advantages

By analyzing the information in the first medical data sharing platform, the feature tag corresponding to the platform is established, which is convenient for unified analysis of all sharing platforms, and then rare analysis of all medical data in the platform is carried out to obtain the first rare case storage generation retrieval feature. Further, According to the retrieval characteristics, the click amount and usage amount of the first rare case are input into the access trend prediction model constructed in the cloud processor to obtain the corresponding first prediction index, and then whether the first prediction index is in the preset prediction index is judged; if the first prediction index is in the preset prediction index, Obtaining a plurality of related medical data sharing platforms interconnected with the first medical data sharing platform, uploading and sharing the medical data corresponding to the first rare case in multiple platforms, and achieving the technical effect of improving the intelligent calculation level of processing rare case data and realizing the interconnection and intercommunication of rare case information based on the combination of artificial intelligence and big data.

4. Specific Implementation Methods

By providing the data sharing method of medical big data, the design embodiment solves the technical problem that the corresponding medical data sharing method is not intelligent enough based on the particularity of rare cases in the prior art, thus causing isolated circulation of rare cases, Improve the intelligent calculation level of rare case data processing, and realize the technical effect of rare case information interconnection. Next, an example embodiment according to the present design will be described in detail with reference to the drawings. Obviously, the described embodiment is only a part of the embodiment of this design, not all the embodiments of this design. It should be understood that, The present design is not limited by the example embodiments described herein.

With the rapid development of informatization, various medical institutions are also increasing their investment in informatization construction, and the informatization level of the medical system is constantly improving. Opening the information barriers between medical institutions and realizing medical data sharing is an inevitable trend that meets the actual data demand of medical and health industry, and has great application value. Data sharing can fuse the medical information of various medical institutions to form large medical data. However, due to the characteristics of massive medical data, multi-ownership, complexity and security, there is still a big obstacle to the breakthrough of data sharing. However, in the prior art, the particularity based on rare cases makes the corresponding medical data sharing method not intelligent enough. Thereby causing isolated circulation of rare cases.

5. The General Idea of the Technical Scheme Provided by This Design Is as Follows

The design embodiment provide a medical big data sharing method base on artificial intelligence, wherein that method is applied to a medical big data sharing system based on artificial intelligence, and the system is in communication connection with a first cloud processor, and the method comprise the following steps: obtaining information of a first medical data sharing platform; The first medical sharing platform information, Establishing a first platform feature label; Carrying out rarity analysis on medical data in the first medical data sharing platform to obtain the first rare case; Storing the first rare case and correspondingly generating a first retrieval feature; A first search feature, which obtains a first click amount and a first usage amount in a first preset period; A first cloud processor, Constructing a first access trend prediction model; Inputting the first click amount and the first usage amount into the first access trend prediction model to obtain a first prediction index; Judging whether the first prediction index is in a preset prediction index; If the first prediction index is in the preset prediction index, a plurality of related medical data sharing platforms are obtained, wherein, The multiple related medical data sharing platforms are platforms interconnected with the first medical data sharing platform; According to the first upload instruction, the first rare case is uploaded to the multiple related medical data sharing platforms.

After introducing the basic principle of this design, various non-limiting embodiments of this design will be introduced in detail with reference to the drawings in the specification.

As shown in figure 1, this design embodiment provides a medical big data sharing method based on artificial intelligence, wherein the method is applied to a medical big data sharing system based on artificial intelligence, and the system is in communication connection with a first cloud processor, and the method includes:

S100, obtaining the information of the first medical data sharing platform;

S200, the first medical service shares platform information and establishes the first platform feature tag;

The first medical data sharing platform is the sharing platform of health care big data at present. The sharing platforms in various regions are closely related, and their application values are effectively exerted in various application fields. Because the sharing of medical care big data is based on various communication platforms, the sharing platform is a medical data sharing exchange platform. Through the unified information network platform, we can share and exchange information directly, and integrate health information resources. Because there are many kinds of shared data and the main sharing attributes in different platforms are different, for example, based on their communication attributes, research characteristics, data categories and other information, Therefore, the platform feature tag of the information of the first medical sharing platform is established based on the attributes of its sharing platform, so that each platform can be intelligently managed based on the tag, and the tagged feature management of the sharing platform can be achieved, thereby improving the sharing management efficiency in the future.

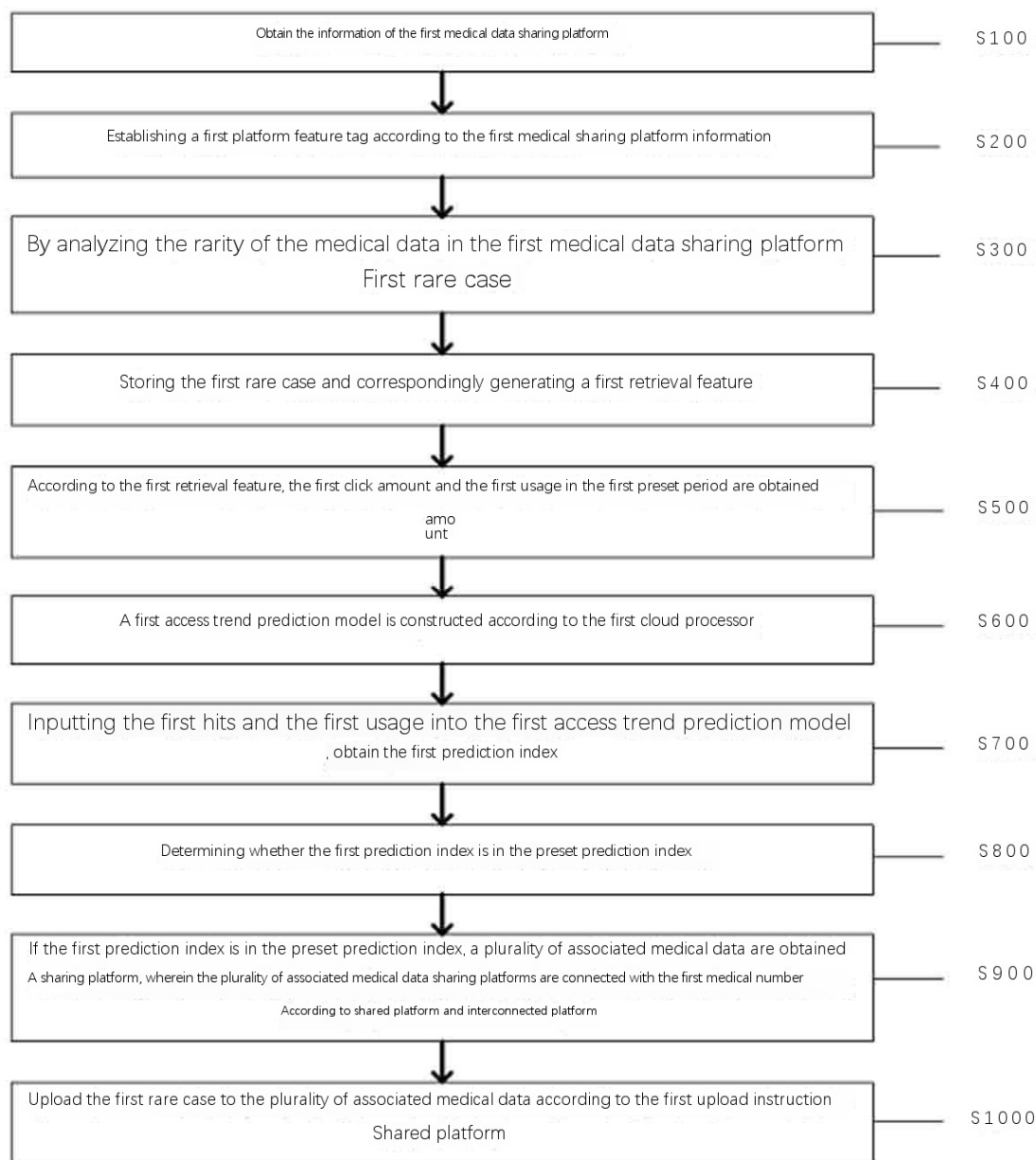


Figure 1. Flow chart of sharing method

Step S300: the first rare case was obtained by analyzing the medical data in the first medical data sharing platform;

First, the medical data in the medical data sharing platform is analyzed for rarity, that is, through the specific analysis of all the case information in the platform, the rare cases are extracted based on the platform built by the computer, and then the rare cases are obtained, Since the medical data in the first medical data sharing platform includes a number of medical data, such as disease category, disease characteristics, examination results, doctor's orders, medication orders, treatment conditions, follow-up visits, etc., since a large number of medical data are stored in various medical institutions in a decentralized manner, the sharing of rare cases is not timely enough, And the timely sharing of rare cases can provide a case reference for other medical institutions. Therefore, through further analysis of rare cases, we can timely screen rare case resources and improve the effective reference of rare cases.

Step S400: the first rare case is stored and the first retrieval feature is generated accordingly;

The first rare case is stored in the cloud database as the first storage unit. The first cloud processor is connected with the cloud database intelligently, The data stored in the cloud database ensures the timeliness and integrity of the data in the cloud processor. Furthermore, the first retrieval feature is constructed based on the main features of the first rare case, and is an effective feature set of the first rare case, It can ensure the reference of the first rare case for detailed tracking calculation, so as to achieve intelligent data processing and improve the accuracy of the system response.

Step S500: the first search feature is used to obtain the first hits and the first usage in the first preset period;

The first preset period is a time period set in advance, and the setting process can be specified based on the total visits of the sharing platform. For example, when the number of visits in the shared platform continues to rise over a period of time, the corresponding comparative calculation can be carried out for the first preset period, The first preset period is inversely proportional to the total visits of the sharing platform. Furthermore, the first click amount and the first usage amount

are the search hits and usage of the first search feature in the shared platform, so as to determine the relevant use value of the first rare case and provide basic data for subsequent calculation.

Step S600: the first cloud processor to build the first access trend prediction model;

The first access trend prediction model is a model based on the basic model of the neural network model, and the first access trend prediction model is a convergence model obtained by supervised learning based on a plurality of effective data. The specific training process is to provide training data to the processor from the cloud database in the first cloud processor, So that the data processing process to achieve cloud computing.

Step s700: the first click amount and the first usage amount are input into the first access trend prediction model to obtain the first prediction index;

Since the first access trend prediction model is a neural network model based on cloud computing, the first click quantity and the first usage amount are input into the first access trend prediction model for data training, so as to obtain the first prediction index. In detail, the first prediction index can predict the hot spot trend of the first rare case, To judge the effective value reference of the first rare case, so as to facilitate the computer-based platform for the processing of relevant data. Among them, the first access trend prediction model is based on the neural network model, and the neural network is an operation model composed of a large number of interconnected neurons, The output of the network is expressed according to a logic strategy of the network connection mode. Through the data training of the first access trend prediction model, the output prediction index is more accurate, and the technical effect of intelligent data processing is achieved.

Step S800: judging whether the first prediction index is in the preset prediction index;

Step S900: if the first prediction index is in the preset prediction index, a plurality of related medical data sharing platforms are obtained, wherein the multiple related medical data sharing platforms are interconnected platforms with the first medical data sharing platform;

The preset prediction index is the expected target data index. When the first prediction index reaches the expected target index, it indicates that the first rare case has certain use value, and its reference hot spot trend will increase, so as to obtain a plurality of associated medical data sharing platforms interconnected with the first medical data sharing platform, wherein, The process of obtaining the multiple related medical data sharing platforms is to help realize the sharing of rare cases on the platform, and improve the rare cases with medical value that each medical institution will encounter for all medical institutions to call and learn. It will help small medical institutions to discover unusual cases early and provide help for the balanced development of medical treatment. In order to achieve hierarchical diagnosis and treatment system and telemedicine work, improve the utilization rate of medical data resources.

Step S1000: according to the first upload instruction, the first rare case is uploaded to the multiple related medical data sharing platforms.

The first upload instruction enables all the data resources related to the first rare case to be uploaded to multiple sharing platforms. Furthermore, the data platform can also integrate the medical information of various medical institutions,

which will form a valuable data analysis of medical data, and provide effective data support for the pathogenesis, population and specific drugs of various rare diseases, Among them, the process of uploading to the multiple related medical data sharing platforms is to share the relevant medical data of rare cases with other sharing platforms in the medical hospital, which achieves the technical effect of improving the intelligent computing level of processing rare case data and realizing the interconnection of rare case information through the combination of artificial intelligence and big data.

The first rare case is obtained by analyzing the rarity of medical data in the first medical data sharing platform. Step S300 of the design embodiment also includes:

Step S310: select all medical data in the first medical data sharing platform to obtain the first screened case;

Step S320: screening the incidence through the first screening case to obtain the second screening case, wherein the second screening case is the case with the incidence less than or equal to the preset incidence rate;

Step S330: obtaining the first rare case based on the second screening case;

Step S340: obtaining the first category of the first rare case;

Step S350: the first category, establishing the first rare feature of the first rare case;

Step S360: a first rare feature is added to the first search feature.

The process of obtaining the first screened case is that all medical data in the first medical data sharing platform are screened for the first time, and all the low incidence and rare case information are extracted from the first medical data sharing platform, and sorted and stored according to the classification. Furthermore, the process of obtaining the second screened case is to control the incidence of cases based on big data, The first rare case information is obtained by extracting the cases that meet the expected rare standard, and then the information of the first rare case is obtained by extracting the relevant case information with the lowest incidence rate in the second screening case according to the size of the incidence rate, Thus, the rare case information obtained by this logical screening method has very high effective value, and then the category of the first rare case is taken as the additional feature of the first retrieval feature to complete the specific calculation. The process of adding the first rare feature is to analyze the specific hot spot value of the first rare case in the field to which the first rare case belongs.

The first cloud processor is used to construct the first access trend prediction model. Step S600 of the design embodiment also includes:

Step s610: all the case data in the second screening case are uploaded to the first cloud processor for data calculation, and the first average click number and first average usage amount are obtained;

Step S620: Taking the first average hits and the first average usage as input data to construct the first access trend prediction model;

Step S630: the first access trend prediction model is obtained by training to convergence through multiple sets of training data, wherein each group of data in the multiple sets of training data includes the first average click amount, the first average usage amount and the identification information used to identify the access trend;

Step s640: obtain the first output result of the first access trend prediction model, wherein the first output result is the result of predicting the access trend of rare cases.

The training data of the first access trend prediction model is obtained by training after data calculation in the cloud processor. The first access trend prediction model is based on the neural network model, which is an operation model composed of a large number of neurons interconnected, The output of the network is expressed according to a logical strategy of the connection mode of the network. The training process is essentially a process of supervised learning, and each group of the multiple sets of training data includes the first average click amount, the first average usage amount and the identification information used to identify the access trend, The first access trend prediction model is constantly self correcting and adjusting until the obtained output result is consistent with the identification information, and the group of data supervision learning is ended, and the next group of data supervision learning is carried out. When the output information of the first access trend prediction model reaches the predetermined accuracy rate / reaches the convergence state, the supervised learning process ends, The training of the first access trend prediction model makes the output of the corresponding prediction result more accurate.

Step S500 of the design embodiment also includes:

Step S510: the first dosage is used to obtain the first case transmission path, wherein the first case transmission path is mapped with the first rare case;

Step S520: track the transmission path of the first case according to the first information tracking command to obtain the first tracking data;

Step S530: calculate through the first tracking data to generate the first propagation index;

Step s540: the first propagation index first access trend prediction model conducts incremental learning to obtain the second access trend prediction model;

Step S550: second, access the trend prediction model to obtain the second prediction index.

The first case propagation path is the use path of the first rare case, such as forwarding, sharing, downloading, etc. the first case transmission path is mapped with the first rare case, that is, the first rare case is mapped with multiple paths in the first rare case transmission path, Thus, the case data tracking is carried out for the propagation path, wherein the first tracking data is to calculate the propagation path, analyze and generate the corresponding calculation data by using the propagation algorithm, and then obtain the first propagation index, The second access trend prediction model is an updated access trend prediction model obtained by machine learning based on the first propagation index. Since the second prediction index needs to combine the old training data of the first access trend prediction model to complete the comprehensive incremental learning results, the second prediction index needs to combine the old training data of the first access trend prediction model to complete the comprehensive incremental learning results, After incremental learning, the first propagation index can retain the basic performance of the first access trend prediction model and update the model performance, so as to obtain the second prediction index, wherein the second prediction index is the prediction data obtained based on the new model, which achieves incremental learning based on the propagation index to improve the performance of accurate prediction of the model.

The design embodiment step s540 also includes:

Step s541: select the first propagation index to obtain n propagation indexes greater than or equal to the preset

propagation index;

Step s542: n propagation indexes are input into the first access trend prediction model to obtain a third prediction index, wherein the third prediction index is the index obtained by inputting n propagation indexes;

Step s543: the third prediction index conducts loss analysis to obtain the first loss data;

Step s544: first loss of data to obtain the second access trend prediction model.

Through the concrete index screening of all the communication indexes, the propagation indexes with effective value are extracted to obtain the N communication indexes, and then the data sets of the N communication indexes are trained as new training sets, Since the second access trend prediction model is based on introducing a loss function to complete the data loss analysis and obtain a new model, wherein the first loss data represents the loss data related to the third prediction index predicted by the first access trend prediction model, Then, the incremental learning of the second access trend prediction model is completed based on the first loss data. Incremental learning refers to that a learning system can learn new knowledge from new samples continuously, and can save most of the previously learned knowledge. Incremental learning is very similar to human learning mode. As the transmission index of the first rare case is constantly updated, the system can continuously predict the trend of the case. Therefore, through the training of lost data, the second access trend prediction model retains the basic data characteristics of the first access trend prediction model, improves the trend prediction accuracy, and achieves the technical effect of intelligent learning.

The S800 of the design also includes:

Step S810: if the first prediction index is not in the preset prediction index, a first return instruction is obtained;

Step s820: the first return instruction to determine whether the second prediction index is in the preset prediction index;

Step s830: if the second prediction index is in the preset prediction index, a second upload instruction is obtained;

Step s840: the second upload instruction completes the multi platform data sharing of the first rare case.

Judge whether the first prediction index is in the preset prediction index, wherein the first prediction index is the output result of the first access trend prediction model. When the first prediction index is not in, the second prediction index and the preset prediction index are judged again according to the return instruction, wherein, Since the second prediction index is the output result of the second access trend prediction model, if the second prediction index is in the preset prediction index, it means that the second prediction index has reached the target expectation index at present. Therefore, based on sharing rare cases with a plurality of related medical data sharing platforms interconnected with the first medical data sharing platform, the technical effect of interconnection and intercommunication of rare case information based on the combination of artificial intelligence and big data is achieved.

Step S1000 of this design embodiment includes:

S1010: the first retrieval feature retrieves the medical data to obtain the first retrieved medical data;

S1020: obtaining a second preset period;

S1030: update the first retrieved medical data in the second preset period to obtain the first updated medical data;

S1040: the first updated medical data is pushed as the added information of the first rare case.

The first retrieved medical data refers to the retrieval of

related medical data based on all the features in the first retrieved features, so as to obtain the first retrieved medical data. Furthermore, the first retrieved medical data is medical data related to the first rare case, which can provide literature and materials for the study of the first rare case. So as to judge the continuous retrieval data based on big data in the second preset period, update the latest relevant research literature materials to keep the materials updated so as to obtain the first updated medical data, and further, use the first updated medical data as the relevant push information of clicking or using the first rare case, Thereby providing better services for the acquisition of related medical resources, saving retrieval resources, and achieving the technical effect of improving the intelligent calculation level of processing rare case data based on the combination of artificial intelligence and big data.

6. To Sum Up

The data sharing method of medical big data provided by this design embodiment has the following technical effects:

1). By analyzing the information in the first medical data sharing platform, the feature tag corresponding to the platform is established, which is convenient for unified analysis of all sharing platforms, and then rare analysis of all medical data in the platform is carried out to obtain the first rare case storage generation retrieval feature. Further, According to the retrieval characteristics, the click amount and usage amount of the first rare case are input into the access trend prediction model constructed in the cloud processor to obtain the corresponding first prediction index, and then whether the first prediction index is in the preset prediction index is judged; if the first prediction index is in the preset prediction index, Obtaining a plurality of related medical data sharing platforms interconnected with the first medical data sharing platform, uploading and sharing the medical data corresponding to the first rare case in multiple platforms, and achieving the technical effect of improving the intelligent calculation level of processing rare case data and realizing the interconnection and intercommunication of rare case information based on the combination of artificial intelligence and big data.

2). By tracking the propagation path of rare cases, and then performing propagation calculation on each mapped propagation path, using propagation algorithm to analyze and generate corresponding calculation data, and then completing the incremental learning of the first access trend prediction model based on the first propagation index and loss function, Thereby achieving the technical effect of improving the

accuracy of model trend prediction and intelligent data processing.

3). Because the cloud processor is used for data storage training, and the propagation index is filtered and cleaned according to certain logic rules, the quality and effectiveness of incremental learning data are improved, and the technical effects of intelligently analyzing data and improving the training performance of model data are achieved.

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