

Research on remote education intelligent recommendation system of computer network Ancient Literature Resources Database

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Abstract: With the development of intelligent education and the development of distance education becoming more and more intelligent and three-dimensional, an intelligent recommendation system is constructed on the basis of learners' individual demands, will achieve learning requirements and recommended content of the precise match. The construction of ancient literature resource database by means of computer network and the timely push of intelligent recommendation system to students will promote the essential change of distance education on the basis of reconstructing the ecology of distance education. This paper analyzes the significance of the remote education intelligent recommendation system of the computer network ancient literature resources database, and probes into the construction strategy of the remote education intelligent recommendation system of the computer network ancient literature resources database.

Keywords: Computer Network; Ancient Literature Resource Library; Distance Education; intelligent recommendation system

The development of distance education will bring about the great development of teaching mode, and the combination of online and offline learning space will bring about the development of various types of blended learning. Based on the combination of on-line and off-line blended learning, the combination of multi-resource providing and acquiring mode, multi-teaching method and so on can make technology disappear. The construction of the remote education intelligent recommendation system of the computer network ancient literature resources database will meet the students' learning demand of the ancient literature resources.

1. CONSTRUCTION BACKGROUND OF REMOTE EDUCATION INTELLIGENT RECOMMENDATION SYSTEM OF COMPUTER NETWORK ANCIENT LITERATURE RESOURCE DATABASE

Distance education has gradually developed to the mainstream education, its trend is to realize the network-based education, two-way interactive self-learning model. Distance education is characterized by the separation of teachers and students, which is different from face-to-face education, the provision of curriculum resources by educational institutions, which is different from individual learning, and the use of a variety of teaching media to achieve two-way communication. An industrialized form of education, in which a product has a large number of users. Although learners can choose their own learning content, it is difficult to find what they really need only by the simple classification provided by the platform among the huge and varied resources, the system itself is lack of personalized learning support services, learners are difficult to achieve personalized learning, and personalized recommendation technology can solve this problem.

Personalized recommendation is realized by extracting learners' personality and curriculum attributes, which include age, occupation, educational level, interest, learning motivation and so on. Course features include course difficulty, subject category, student category and so on. The problem of "cold-start" can be solved by extracting learners' personality, and the learners' learning style and personal cognitive level can be deduced without relying on historical data to recommend resources to users directly. Extracting the attribute information of the resources themselves can calculate the correlation degree of the resources, and at the same time, by analyzing the user's log of the website, we can get the interest degree of the users to the resources they have browsed, based on the similarity between the resources, or the combination of these two characteristics, to provide learners with similar

learning behavior of the user has learned the resources. Through accurate resource recommendation based on user's interest and resource attribute, a personalized recommendation system is constructed to provide better user experience and personalized service for distance education system.

Social networks can recommend other users with similar interests and interests as friends, and distance learning systems or websites can also analyze user behavior, to extract learners' learning preferences or personality traits, the degree of adaptation to course resources or different learning modes, and to recommend users similar to their learning behavior or learning interest, offer the possibility of mutual study. In addition, the relevant techniques in personalized recommendation can also provide learners with information about the difficulty of the course and their adaptation to it, so as to make effective learning suggestions, to realize the customized learning behavior of learners with pertinence and Planning, and to provide teachers with scientific teaching suggestions based on this kind of information, so we can adjust the teaching content or teaching method, arrange teaching activities reasonably and realize individualized teaching guidance.

2. THE CONSTRUCTION MECHANISM OF REMOTE EDUCATION INTELLIGENT RECOMMENDATION SYSTEM BASED ON COMPUTER NETWORK ANCIENT LITERATURE RESOURCE DATABASE

The construction and design of the ancient Literature Resource Database of computer network may play an important role in promoting the integration of disciplines, integrating curriculum system, and cultivating professional and excellent talents. Based on the understanding of the essence and ontology of distance education, this study will further answer the core ideas of distance education innovation.

No matter what form of education, the ultimate target is the human. Therefore, the connectedness of individual learning, which is emphasized in connectionism learning theory, is the process of establishing the connection of internal cognitive neural network, conceptual network and external social network. The connection of individual learning level is the connection of cognitive neural network in human brain firstly. The nervous system of the human brain is a complex functional system composed of neurons. Cognitive neuroscience has found that human learning is the result of multiple brain regions participating and cooperating together. Learning is the process of sculpting the connections between neurons in the brain and building cognitive networks.

Human knowledge is a large conceptual network, the process of learning is to establish the connection between the concept network system carried by cognitive neural network and the concept network adapting to the development of external society and the need of problem solving. Social network, that is, human connection, is the basis of innovation in distance education. The realization of cognitive connectivity is the excavation of human potential, and human connectivity will realize the sharing of group wisdom. Even in a completely networked space, the most powerful network is the network of people. At present, many innovation practices in the field of distance education are based on people-to-people connection, and carry out collaborative innovation by creating platforms, creating communities, building social interaction networks, connecting and gathering like-minded people. Today, for example, community-based learning and CMOOC connect concepts on this basis. The innovation practice of distance education can be a single network innovation in individual cognitive network, concept network and social network.

The development of distance education brings about the connection of social network, which makes all sectors of society can participate in resource sharing and co-construction. Computer networks the construction of ancient literary repositories is no longer created and provided by specialized government-led institutions, as in the traditional education system. Based on the Internet, every individual or group can create and share learning resources, these resources through the demand side of the selection, recommendation, sharing to achieve the survival of the fittest resources. With direct access to the creators and users of resources, high-quality resources can be recommended and shared more quickly, and the feedback cycle of resource update and iteration is

shorter. The speed of resource co-construction and sharing is faster and faster, and the pertinence and refinement degree of resources are also higher and higher.

From the macro level, distance education involves the process of communication between the local ecosystem of human society and the whole complex network of the real world. On the one hand, from the traditional point of view, there will be involved in the education system and the external reality of the link between the organization. The development of distance education creates opportunities and conditions for this kind of connection, and promotes the development of the talent training mode of the integration of production, teaching and research. At the same time, many distance education enterprises are creating brand-new education supply mode, organization mode and service mode, which is also giving birth to the reform and development of the traditional education system. On the other hand, this kind of connectivity is not only the traditional sense of the organization of the connectivity. More importantly, the "Internet" is based on the formation of various open communities, communities and groups of non-entity, networking, virtual organizations and inter-organizational connectivity. With the help of self-organization and dynamic community education, the new form of education is formed. This kind of connectivity can break the limitation of time, space and the original organization and management rules in the real society, and realize the cross-border combination and innovation, on the basis of reconstruction, development, iteration and evolution, a new educational ecological system is created.

3.The realization of remote education intelligent recommendation system of ancient literature resource database based on computer network

Deep learning technology is helpful for recommendation system to be used in large-scale data scene. Deep learning deep complex network structure needs a lot of data to train the whole model, sparse features can be transformed into low-dimensional dense vectors with abundant information by neural networks. Complex network structure can fit any non-linear function and excavate the underlying pattern of data. The deep learning model has strong extensibility, can fuse many kinds of heterogeneous data, capture user's interest from many aspects, and improve the forecast accuracy of the model.

3.1 Application of embedded technology in recommendation system

Recommendation systems typically use embedding techniques to represent an object as a low-dimensional dense vector, which can be an item, a user, etc. , the distance between vectors implies the relationships between items, users and users, users and items. The embedding technique has become an essential part of the recommender system, which mainly deals with sparse features, fusing a large amount of information to form a valuable low-level vector, which is input into the training model of the neural network. The relationship between vectors can also be used as recall strategy to select candidate items matching users 'interests.

3.2 Multilayer perceptron based recommendation model

The Multilayer perceptron model is widely used in recommendation systems. Usually, the original data is input into the Multilayer perceptron after being embedded to form a vector, and the nonlinear representation of the data is learned, combined with Multilayer perceptron to extract higher order feature intersections, it can be used to predict item scores, accurately rank tasks, and predict user click through rates. The whole system is divided into the matching stage and the sorting stage. The matching stage uses the efficient recall strategy to recall the candidate items which the user may be interested in from the million-scale video library. This stage requires high searching efficiency, and the retrieved video correlates with the user's historical behavior and preferences. In the sorting stage, the recalled videos are graded and sorted in fine granularity, and the neural network is used to input the user features, video attributes and scene information into the model, and then the candidate videos are scored and predicted, sort by score, and select high-rated videos as a list of recommendations.

3.3 Recommendation system based on recurrent neural network

The Multilayer perceptron and convolutional neural network are feedforward networks, fully connected layer by

layer, but without any connection between each layer's neuron nodes, which is detrimental to modeling time series data such as text or audio, therefore, a recurrent neural network is proposed to process time series data. In recent years, recurrent neural networks have made a lot of progress in machine translation and natural language processing. In the recommender system, the recurrent neural network is mainly used to model the history session sequence of the user, to learn the evolution of the user's preference and the user's context-related interests, and to apply to the session recommendation task. In this model, GRU model is used as basic unit, and session parallel small batch data is introduced. GRU model is used as basic unit, and the output of small batch is sampled, and the sorting loss function is used to train the model, match the target task and capture the evolution of user's interest over time. The model excavates a large number of user behavior logs, such as browsing, clicking, collecting and so on, and forms a behavior sequence over time. The new neural embedding method is used to acquire the uniform object representation space, to learn the latent vector of objects, and to capture the sequence correlation between objects. Long Short-Term Memory has developed serialized recommendations based on learning about personal preferences and current consumption motivations.

3.4 Attention based recommender systems

The interests of users vary and change over time, click behavior is locally active, and click behavior at a time is only related to some historical data in the past, not all historical records. Attention mechanism is introduced into DIN model to model user behavior sequence data, and user behavior is weighted to sum based on attention mechanism, which makes the model pay more attention to beneficial information and predict the next click. Small-batch regularization method and adaptive activation function are proposed to aid model training. Modeling dynamic gradients of user preferences based on historical behavior is a huge challenge for recommender systems. Existing algorithms use sequential neural networks, follow the order from left to right, and use one-way information to model. This strict order reduces the representation ability of historical sequences and affects the accuracy.

4.CONCLUSION

In the era of the rapid development of information technology, the amount of data on the internet has also shown an explosive growth trend, followed by the "information overload" problem is inevitable, recommender systems play an important role in alleviating information overload. Deep Learning Technology is integrated with recommender system to build user interest model and generate personalized recommendation list. Compared with the traditional recommendation algorithm, deep learning enhances the model's expandability and representation ability, which enables the model to incorporate more diverse features, capture users' interests, and improve the model's prediction accuracy. This paper analyzes the remote education intelligent recommendation system of computer network ancient literature resources database, and further analyzes the research progress of deep learning recommendation model, in order to lay a foundation for improving the quality of distance education.

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