Forest Chemicals Review
www.forestchemicalsreview.com
ISSN: 1520-0191
March-April 2022 Page No. 510-520
Article History: Received: 08 February 2022, Revised: 10 March 2022, Accepted: 02 April 2022, Publication: 30 April 2022

Multidimensional Evaluation of Network Information Resources based on Chaotic Coupling of Big Data

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Abstract:

Aiming at the problems of scattered user information resources in deep fusion social networks, which leads to poor accuracy of information resource detection and evaluation and large data transmission delay, a multidimensional evaluation method of network information resources based on chaotic coupling of big data is proposed. We construct a deep fusion social network information resource mining and feature extraction model, realize machine optimization of network information resources through decision scheduling, use similarity feature analysis to mine the joint association rules of deep fusion social network information resources, combine nonlinear system analysis methods to construct a big data chaotic coupling control model of network resource information, and realize the multidimensional phase space reconstruction of network information resources under the guidance of logistic chaotic mapping. The multi-dimensional evaluation and characterization of network resources are realized in the reconstructed phase space of deep fusion social network information resource distribution. The simulation results show that the method is used for the multidimensional evaluation of network information resources with a high level of convergence and good convergence, which effectively improves the access and scheduling capability of network information resources.

Keywords: big data chaotic coupling; social networks; information resources; similarity features; multidimensional evaluation

I. INTRODUCTION

With the continuous and in-depth application of deep converged social networks, there are more and more deep converged social network information resources, and it is necessary to build an optimized information fusion model of deep converged social network information resources, combine with the optimal evaluation and feature reorganization of network resources, and improve the access and scheduling ability[1] of deep converged social network information resources. Realizing the multidimensional structure feature reorganization of deep fusion social network information resources and improving the evaluation effect of deep fusion social network information resources, the research of related deep fusion social network information resource evaluation methods is of great significance[2] in the information management

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and optimal resource allocation of deep fusion social networks.

Multidimensional evaluation of deeply integrated social network information resources is the basis for realizing data informatization management and network transmission control system design, constructing a feature fusion and scheduling model for multidimensional evaluation of network information resources, using fuzzy degree information scheduling and multi-source subspace reorganization to realize multidimensional evaluation[3] of network information resources, and literature [4] proposed a multidimensional evaluation method of network information resources based on rough set feature matching by fuzzy rough sets to select the optimal attribute set of network data and use GMM-LDA clustering cluster features to obtain network information resource attributes to achieve resource evaluation. Literature[5] proposed a support vector machine learning-based network information resource evaluation method to establish the structure of deep fusion social network information resources, and construct a learning model for multidimensional evaluation of deep fusion social network information resources through classification algorithms and resource scheduling methods to achieve multidimensional evaluation of deep fusion social network information resources. The above methods have certain effectiveness, but the level of adaptability to the evaluation of deep fusion social network information resources is not high and the level of information fusion is not good[6].

To address the above problems, this paper proposes a multidimensional evaluation method of network information resources based on chaotic coupling of big data. Firstly, a deep fusion social network information resource mining and feature extraction model is constructed, and decision scheduling and machine optimization seeking methods are used to realize deep fusion analysis of network information resources, then similarity feature analysis is used to realize joint association rule mining of deep fusion social network information resources, and multidimensional phase space reconstruction of network information resources is realized under the guidance of logistic chaos mapping. The multi-dimensional evaluation and feature analysis of network resources are realized in the reconstructed deep fusion social network information resource distribution phase space. Finally, simulation test analysis is conducted to demonstrate the superior performance of this paper's method in improving the fusion capability of deeply fused social network information resources.

II. WEB INFORMATION RESOURCES BIG DATA MINING AND PRE-PROCESSING

2.1 Big data mining of network information resources

In order to realize multidimensional evaluation of network information resources based on chaotic coupling of big data, it is necessary to first construct a deep fusion social network information resource mining and feature extraction model[7], use decision scheduling and machine optimization seeking methods to realize deep fusion analysis of network information resources, construct a deep fusion social network information resource management level evaluation set to [satisfy $\forall i \in S_s$, use topic word list feature analysis and Logistics chaos feature mapping method[8] to obtain the cost function of social network information resource decision making and merit seeking.

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$$b(n)=d(e)+f_v+d \tag{1}$$

Where, $d(e)$ is the network information resource management parameters, d is the social network feature extraction parameters, f_v is the associated dimensional parameters of deep fusion social network information resources extracted from the release pattern results, through the method[9] of mutual information learning, analyze the amount of big data coupling features of deep fusion social network information resources, and get the decision objective function of deep fusion social network information resources scheduling.

$$s_i(t)=P_i(t)+\sum_{n=1} b(n)+f_v \tag{2}$$

where $P_i(t)$ denotes the template parameter matching feature quantity, according to the deep fusion social network information resource information fusion results, using decision seeking and fuzziness mining[10], to get the big data reconstruction of deep fusion social network information resource distribution, the memory range request information distribution in the phase space with embedding dimension as m and time delay parameter as τ , to get the hash check code, in the Logistics chaotic feature reconstruction space , the fused social network information classification decision function is obtained as

$$S(a)=s_i(t)+\left(f_x(t)+g_x(t)\right)+\left(f_\theta(t)+g_\theta(t)\right) \tag{3}$$

where, $f_x(t)$ $f_\theta(t)$, , $g_x(t)$, $g_\theta(t)$ respectively, denote the statistical feature quantities of deeply fused social network information resource management, and the general structure model[11] of big data mining and resource evaluation of fused social network information resources is established based on ID3 decision tree seeking control, as shown in Fig.1

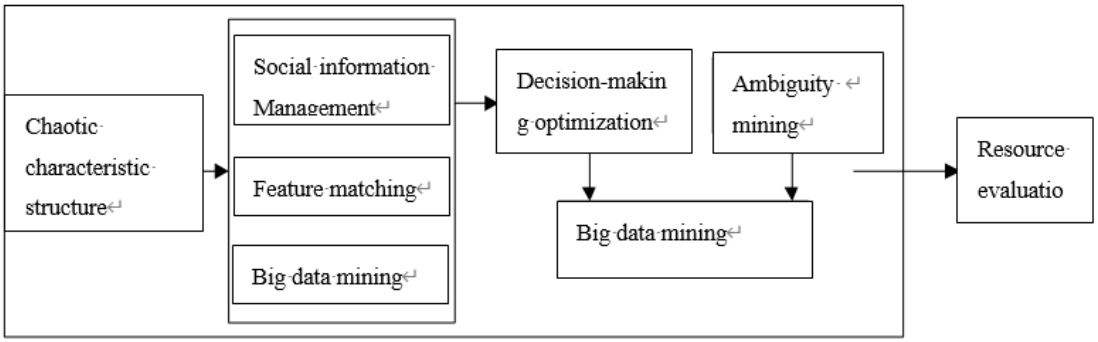

Fig.1 big data mining and resource evaluation model integrating social network information resources

2.2 Social network information resource integration

The method[12] of graph node similarity fusion is used to construct a mutual correlation function $C(\tau)$ for deep fusion social network information resource detection defined as

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$$C(\tau)=t(\tau)+\frac{f_x(t)+g_x(t)}{t} \tag{4}$$

where t and $t(\tau)$ denote the correlation assignment coefficients for quantitative merit seeking of momentary deep fusion social network information resources, and the third-order autocorrelation function for the evaluation of deep fusion social network information resources is obtained by using a variety of semantic similarity fusion analysis methods.

$$d(l)=\frac{x_n+d}{i}+h(x) \tag{5}$$

Where, x_n denotes the sequence of similarity of node A on the ontology O_1, B, d denotes the time delay parameter, the time interval $D=2d$ of information fusion is obtained by calculating the information entropy to the deeply fused social network information resources, i denotes the mean value, $h(x)$ denotes the discrete distribution sequence $x(n)$ by taking the mean value of the characteristic components of the deeply fused social network information resources.

$$x(n)=\sum_{l=1} d(l)+z(x)+k_m \tag{6}$$

Where, $z(x)$ is the method parameters of subgraph approximate isomorphism, k_m for the establishment of the principal component feature quantity of the deep fusion social network information resource reorganization, to get the overall semantics of the network information resources corresponding to the fuzzy concept feature distribution as $R_2^T R_2=V_2\sum{}_2 V_2^T$, under the user authority division mechanism, using chaotic coupling control[13], to get the information entropy satisfaction $I\left(R^N;\varphi_g \mid Z^N\right)=0$ of the deep fusion social network information resource optimal distribution, combined with semi-supervised learning, to get the deep fusion social network The set of state covariates of information resources is represented as

$$E=N_w+t_s+z(x) \tag{7}$$

where N_w is the reliability function for multidimensional evaluation when obtaining deep fusion of social network information resources on discrete tuples, and t_s is the collective classification method parameter.

Based on the distribution of user posting patterns and user profiles[14] in social networks, a multidimensional evaluation parameter model of network information resource scheduling is obtained under the coding fusion mechanism.

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$$Q = N_w + \frac{g(h) + E}{u} \tag{8}$$

Where, $g(h)$ is the expected value of deep fusion social network information fusion, u denotes the decision coefficient. The deep fusion social network information resource mining and feature extraction model is thus constructed, and the decision scheduling and machine seeking methods are used to realize the deep fusion analysis[15] of the network information resources.

III. OPTIMIZATION OF MULTIDIMENSIONAL EVALUATION OF WEB INFORMATION RESOURCES

3.1 Big data chaotic coupling

Decision scheduling and machine optimization seeking methods are used to achieve deep fusion analysis of network information resources, similarity feature analysis is used to achieve joint association rule mining of deep fusion social network information resources, and LDA model learning and chaos coupling are used to obtain the output of multi-dimensional phase space reconstruction of deep fusion social network information resources as

$$J(a) = (R + Y) + H_i(z) \tag{9}$$

In the above equation, R is the state equilibrium factor of chaotic coupling of big data, Y is the best relevance fusion feature component, $H_i(z)$ is the similarity panacea, according to the multivariate transformation method, the fuzzy entropy of deep fusion social network information resource fusion is obtained as

$$G(m) = \frac{w(f) + H_i(z)}{r_i} + \int_{a=1}^{i} J(a)da \tag{10}$$

where $w(f)$ is the topic distribution parameter for multidimensional evaluation of social network information resources and r_i is the logistic chaos mapping parameter.

Combined with semantic correlation analysis, the parameter matching sequence of feature fusion is obtained $\{e_1, e_2, ..., e_r\}$, where $e_i = (o_i, p_{i+1})$, here $1 \le i \le r$, $o_i \in \{p_1, p_2, ..., p_i\}$, the multidimensional phase space reconstruction of network information resources is realized under the guidance of logistic chaos mapping, and the multidimensional features in the reconstructed phase space of the distribution of deeply fused social network information resources are obtained as

$$Y_m(d) = \tilde{x}(v) + N_0 + \tilde{x}(s) \tag{11}$$

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where $\tilde{x}(v)$ is the correlation of chaotic coupling of big data, N_0 is the sampling time interval, and $\tilde{x}(s)$ indicates the amount of mutual information of chaotic coupling.

3.2 Multidimensional evaluation output of web information resources

The multidimensional evaluation and feature analysis of network resources are implemented in the reconstructed phase space of deeply converged social network information resource distribution, and the associated semantic resolution features of network information resource distribution are obtained as

$$d(f)=u(a)+X_{a+1}+w_q \tag{12}$$

Where, is the amount of posting topic features for each user, combined with the semantic relevance decomposition, the fuzzy iteration sequence is X_{d+1} obtained as, combined with the systematic reconstruction method, the convergence condition of the multidimensional evaluation of social network resource information is obtained as .

Using closed frequent term mining and big data chaotic coupling, the semantic structure of the optimal reorganization of deeply integrated social network information is obtained as

$$Z(r)=\frac{t_c+t_a}{w_q}+d(f) \tag{13}$$

where t_c is $A[n+1]$ the optimal feature distribution interval and t_a is the inertia parameter of chaotic coupling, the output of multidimensional evaluation of social network information resources is obtained as

$$M=\cos t_a+\sum_{r=1} Z(r)+s(c) \tag{14}$$

Among them $s(c)$ are the information multidimensional spatial data parameters, and according to the above algorithm design, the multidimensional evaluation and feature analysis of network resources are realized in the reconstructed deep converged social network information resource distribution phase space, and the resource optimization scheduling capability of deep converged social network is improved.

IV. SIMULATION TEST ANALYSIS

In order to verify the application performance of this paper's method in realizing multidimensional evaluation and scheduling of deeply fused social network resources, simulation test analysis is conducted, the test set for network information resource collection is5400, the training set is120, the learning

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efficiency for multidimensional evaluation of network information resources is set to 0.03, the fuzzy iteration method is used to achieve convergence control of resource scheduling, 100 iterations of validation data, the chaotic phase space reconstruction of embedding delay is set to 1.57ms, the dimension of high-dimensional feature embedding is5, according to the above parameter settings, deep fusion social network resource multidimensional evaluation is carried out, and the method of literature [4] and literature [5] is used as the experimental comparison method, and the comparison results of social network resource load estimation are obtained as shown in Fig.2.

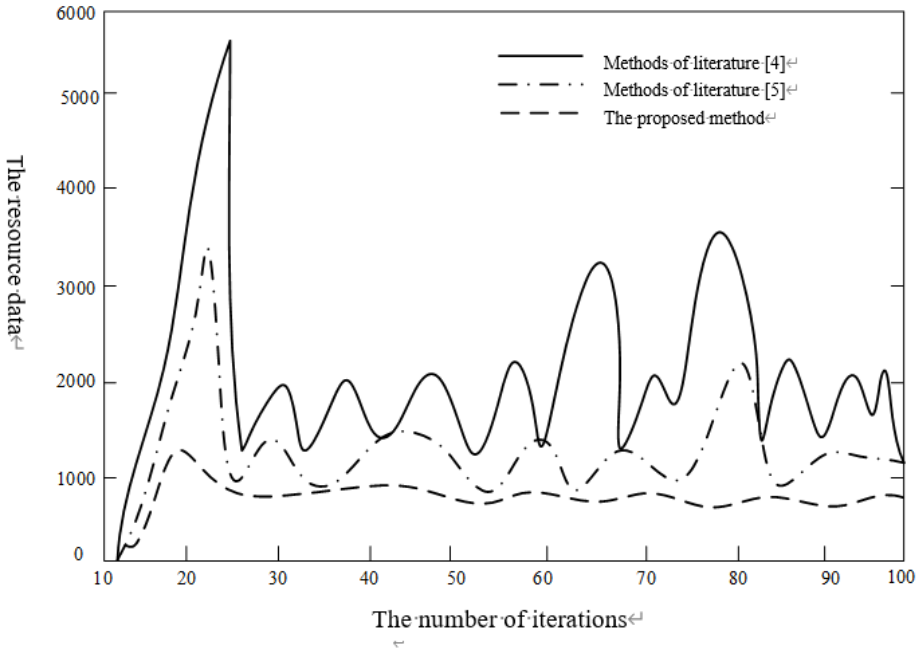

Fig.2 social network resource load

According to the social network resource load distribution of the figure 2, the multidimensional evaluation of resources is realized and the parameter evaluation results are obtained as shown in Fig. 3.

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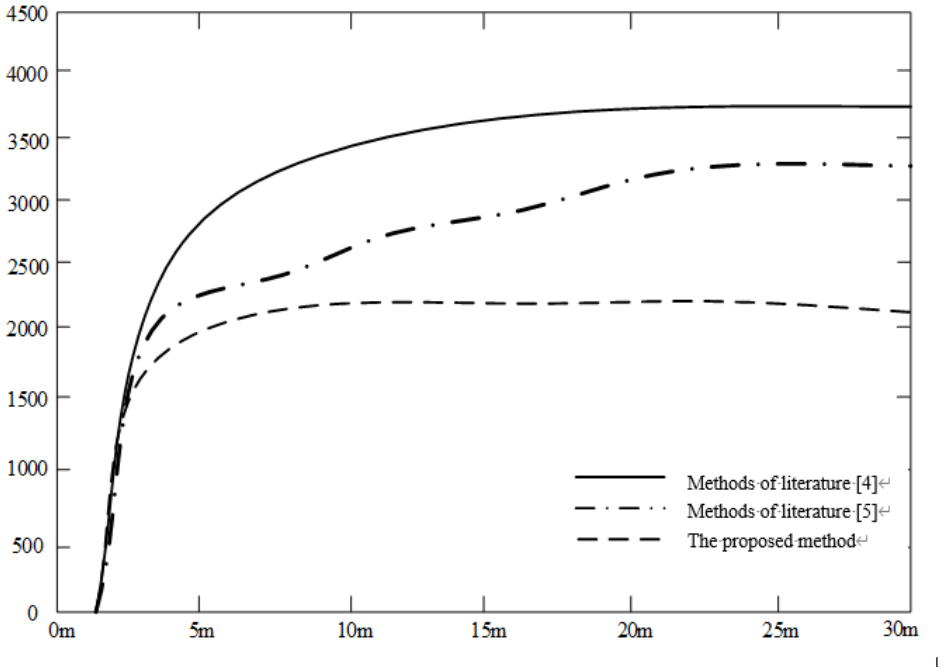
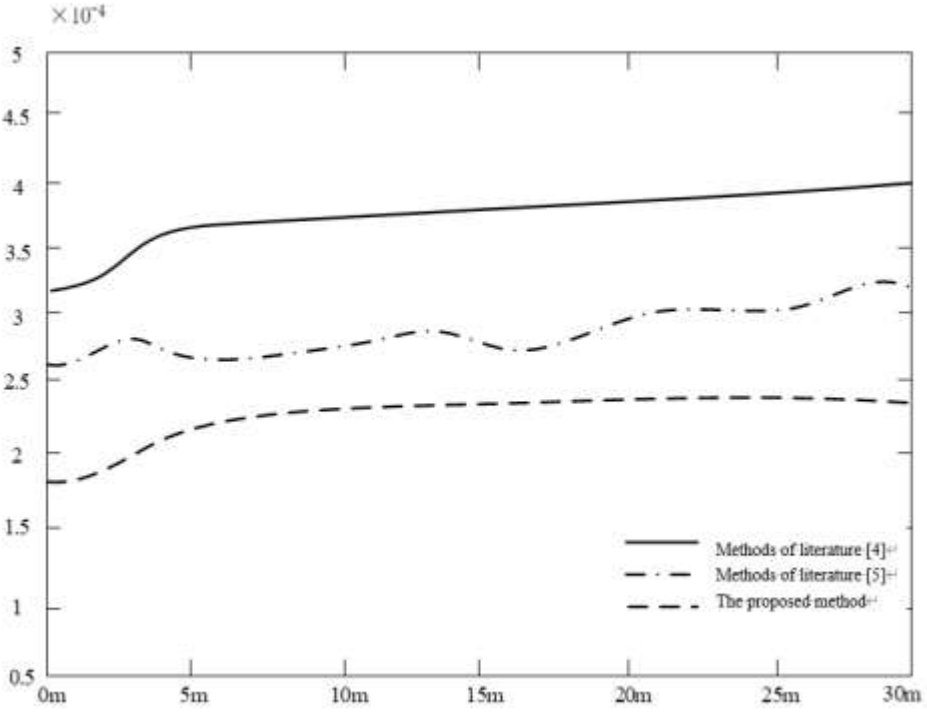


(a) Average load of network information resources transmission



(b) Average transmission delay

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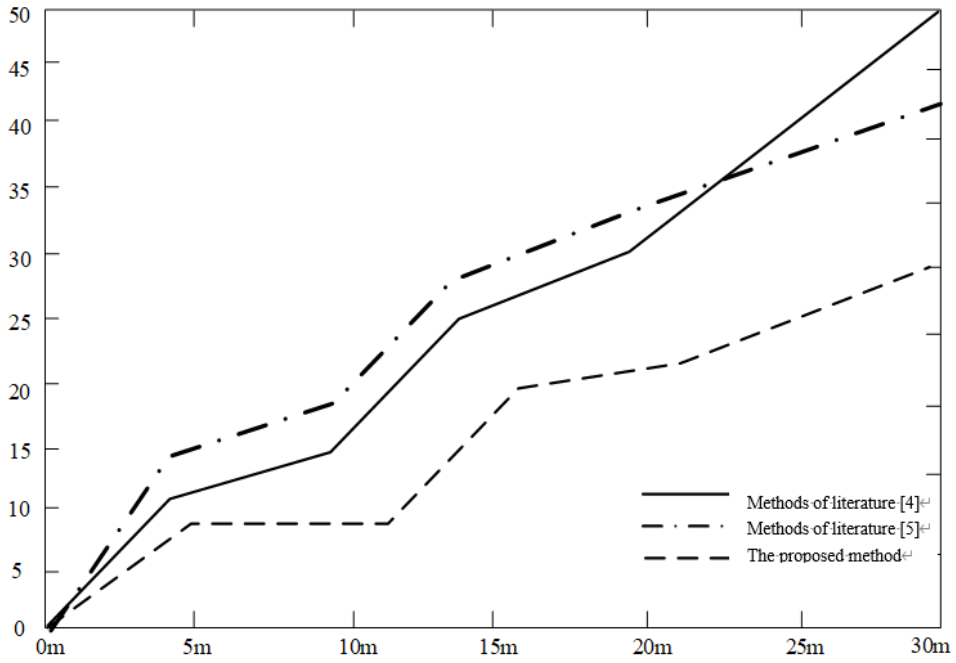

(c) Number of network switches

Fig.3 Comparison of multidimensional evaluation of network information resources

Analysis of the graphs3 shows that the method in this paper can effectively achieve multidimensional evaluation of deeply converged social network resources, with a high level of convergence and good convergence for the evaluation of deeply converged social network resources, which improves the access and scheduling of network information resources and reduces network transmission delay.

The accuracy of the test evaluation and the comparison results obtained are shown in the table1.

TABLE I. Accuracy comparison of multi-dimensional evaluation of deeply integrated social network resources

NUMBER OF ITERATIONS	METHODOLOGY OF THIS ARTICLE	LITERATURE [4] METHODS	LITERATURE [5] METHODS
100	0.935	0.823	0.866
200	0.974	0.875	0.893
300	0.982	0.891	0.902
400	0.998	0.902	0.925
500	0.999	0.914	0.944

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Analyzing the table1, we know that the accuracy of this paper's method for multidimensional evaluation of deeply fused social network resources is higher and is reached0.999 when the number of iterations is500 when the accuracy of multidimensional evaluation of social network resources of the methods of literature [4] and literature [5] are 0.914and0.944 respectively. Thus, it can be seen that the accuracy of the method in this paper is high for the multidimensional evaluation of social network resources, and the network transmission delay is low, which has certain practicality.

V. CONCLUSION

In this paper, we construct a deep fusion social network information resource classification fusion and multidimensional evaluation model, realize the multidimensional structure feature reorganization of deep fusion social network information resources through resource optimization allocation and access control, and propose a multidimensional evaluation method of network information resources based on big data chaotic coupling. The deep fusion analysis of network information resources is realized by using decision scheduling and machine seeking method, and the graph node similarity fusion is used to construct a deep fusion model, and the joint association rule mining of deep fusion social network information resources is realized in the reconstructed distribution phase space of deep fusion social network information resources by using similarity feature analysis in conjunction with the inter-correlation distribution of social network information resource detection This paper is a multi-dimensional evaluation and feature analysis of network resources, and improves the resource optimization scheduling capability of deep fusion social networks. It is learned that the method in this paper has a small delayed output, high convergence degree and good accuracy for resource information evaluation of deep converged social networks.

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