

## *Retraction*

# **Retracted: Multimedia Filtering Analysis of Massive Information Combined with Data Mining Algorithms**

### **Advances in Multimedia**

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] B. Wang, "Multimedia Filtering Analysis of Massive Information Combined with Data Mining Algorithms," *Advances in Multimedia*, vol. 2021, Article ID 7461874, 7 pages, 2021.

## Research Article

# Multimedia Filtering Analysis of Massive Information Combined with Data Mining Algorithms

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With the advent of the big data era, information presentation has exploded. For example, rich methods such as audio and video have integrated more information, but with it, a lot of bad information has been brought. In view of this situation, this paper relies on data mining algorithms, builds a multimedia filtering system model for massive information, and integrates content recognition, packet filtering, and other technologies to match the two to ensure the integrity and real time of filtering. Practice results prove that the method is effective.

## 1. Introduction

With the advent of the era of big data, information presentation has exploded. For example, rich methods such as audio and video have integrated more information. For users, too much information and data need to be cleaned up in time, otherwise it will be a lot of burden [1, 2]. At the same time, not only is this information useful information for users, but also, because of the lack of corresponding security control mechanisms, bad information is also spreading [3–5]. All kinds of scams, cults, and other bad information flood the Internet, which is very poisonous to users' thoughts, and can even cause serious public safety hazards. Therefore, for these bad information, it is necessary to adopt a certain filtering plan to achieve the filtering of the information, but the traditional method cannot guarantee and complete the filtering.

Therefore, in response to this limitation, based on data mining algorithms, this paper proposes a model of massive information multimedia filtering analysis. Through the steps of capturing, identifying, filtering, compensating, and communicating, it tries to explore the filtering analysis of massive information, aiming to optimize the Internet environment.

## 2. Data Mining Algorithm

The so-called data mining algorithm is to reproduce the hidden knowledge, services, and data through data mining of samples.

this paper builds a distributed multimedia stream filtering system based on data mining algorithms. The specific architecture is shown in Figure 1. First, the corresponding front-end processor is set up for preliminary filtering, mainly for content identification and filtering, and the corresponding records are recorded and sent back to the data control center; the control center summarizes and updates information to ensure the sharing of front-end information. In order to ensure the smooth flow of communication, the interconnection can be realized by means of center and connection [6–9].

Secondly, the filtering system in the front-end processor can work independently to complete the data flow filtering for the first time into the network. Through real-time content identification and analysis, the data judged as illegal messages are directly processed [10–12].

On the one hand, the messages processed for filtering measures are compared with the existing blacklist. If they match, an alarm will be triggered to prompt a filtered message to be processed; on the other hand, based on the alarm message identified by the real-time system, if there is indeed an illegal message, then proceed directly [13, 14].

For illegal multimedia streaming data packets, by replacing them with blank compensation frames, it is proved that compensation is made in multimedia streaming file transmission. While shielding illegal data packets, the integrity of the streaming media data packets is ensured. The specific structure diagram is shown in Figure 2:

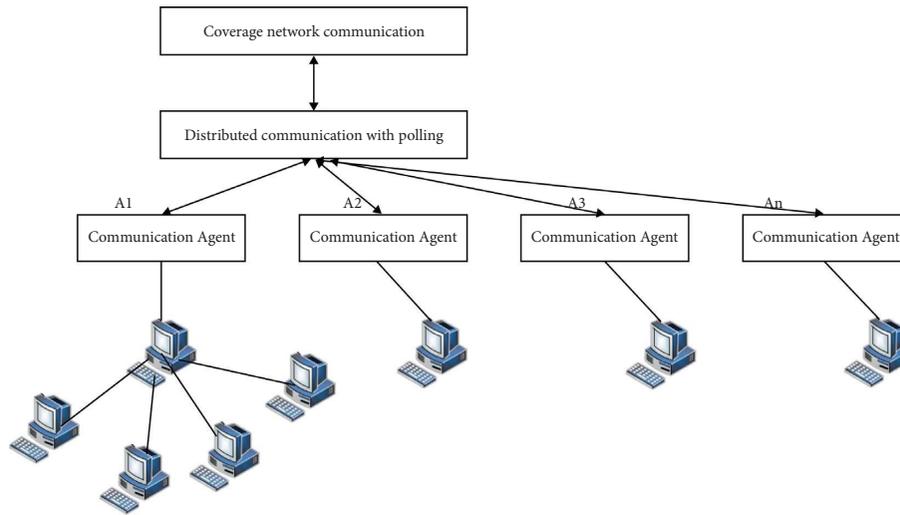


FIGURE 1: Distributed multimedia stream filtering system.

### 3. Multimedia Object Server

**3.1. Mass Multimedia Storage.** As we all know, for multimedia, with the development of technology, the types gradually become rich and colorful, including various static ones such as pictures and images and dynamic ones such as audio and video. These data must exist in the multimedia server to allow users to directly access through the Internet to ensure the validity of the data [14, 15].

Therefore, in the face of massive media information, the first consideration is storage and management. This requires not only the storage of multimedia but also the calling of aspects. For a high-quality pixel image, it may exceed 100 M. Hardware of PC and mobile terminals and the speed of network transmission have very high requirements. Therefore, it is necessary to comprehensively consider the actual requirements of speed and storage capacity and choose the corresponding media storage and hierarchical storage management.

For dynamic information such as audio and video, it occupies a larger space. There are dedicated servers for the types of these objects, and these numbers must be supported by corresponding data. Typical storage, such as relational database or nonrelational database, requires effective design and analysis.

**3.2. Problems That Need to Be Paid Attention to When Applying Multimedia Object Databases.** However, it should be noted that the flexibility of P2P network transmission is high, and it is difficult to completely match the filtering rules and content analysis. In addition, packets can also be sent through other nodes, which can directly bypass the filtering system. Therefore, this article relies on data mining algorithms, fully considers this situation, and uses the relevant characteristics of distributed systems to summarize and construct a new set of hybrid network topology. In the overlay network, there is a dedicated server, which is mainly used for storage. The blacklist and other information, the server, and the multimedia stream

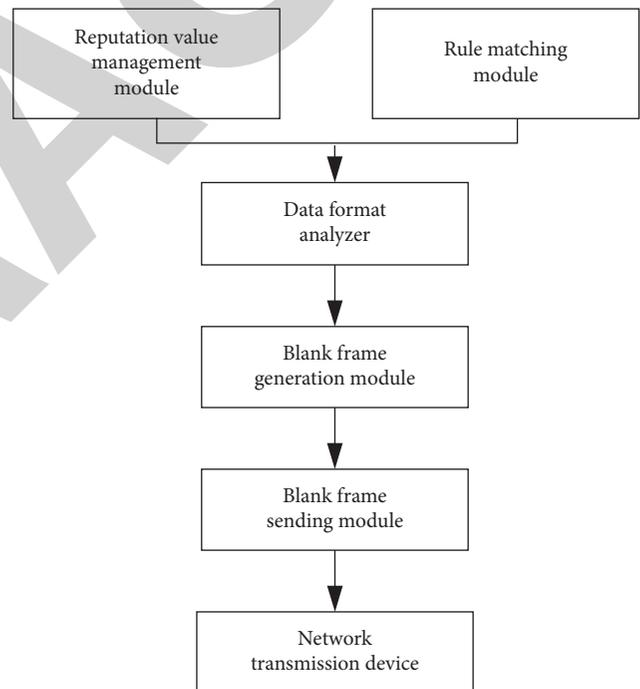


FIGURE 2: Compensation agent system structure diagram.

file identification of each subnode communicate with the communication agent of the filtering platform in the C/S mode, and they constitute the interactive platform of the distributed filtering system in the overlay network.

The communication module in the system allows the multimedia stream identification platform and the filtering system to communicate with each other to realize the sharing of the child nodes of the filtering platform. The specific shared and interoperable content is the specific communication within the network facility, which can realize the multimedia stream identification and filtering platform database. The content is updated in real time. The

specific module system structure diagram is shown in Figure 3.

The communication module mainly includes polling and monitoring, blacklist uploading, updating, and other modules. The blacklist uploading is responsible for uploading local blacklist updates. The polling monitoring module is for monitoring the link requests of fixed ports and is responsible for mutual links, so as to complete the implementation. The filtering rules of data packets are processed in the whole process.

#### 4. Improvement of Filtration Technology

Relying on data mining algorithms, it optimizes the filtering engine for scalability, rigor, and multimedia information feature recognition to realize the optimization and perfection of filtering.

**4.1. Algorithm Expansion and Optimization.** The underlying algorithm support library in the multimedia information filtering technology in the traditional big data environment is too old to recognize the newly emerging digital high-definition encoding and packaging formats in the big data environment, resulting in many new multimedia information resources that cannot be identified and filtered. For this reason, dynamic encoding algorithm is replaced, and the underlying support library of the original algorithm is updated. The dynamic encoding algorithm is refined and summarized according to the common characteristics of multimedia information in the big data environment. It has the characteristics of self-upgrading and self-learning. The dynamic encoding algorithm expression is

$$fd = \frac{2^e}{s} (f_{e \in \text{link}} e^2) \sum_{e=1}^{f_s} \rightarrow \prod_{\text{link}}^{1/2} d,$$

$$fd' = \frac{(f_{e \in \text{link}} e^2)}{2} \sum_{e=1}^{f_s} \rightarrow \prod_{\text{link}}^{1/2} d, \quad (1)$$

$$fd'' = \frac{(f_{e \in \text{link}} e^2)^{2e} \sum \prod d}{2f_s} \Rightarrow \frac{1}{2_{\text{link}}} s.$$

Among them,  $d$  is the big data space,  $s$  is the data volume of the big data space, and  $f_{(e \in \text{link})} e^2$  is the feature function of the big data space.

The above dynamic coding algorithm expression is a steady-state dynamic coding algorithm expression. With the change of  $d$  and  $S$  values, the dynamic coding algorithm expression undergoes self-derived conversion to realize the function of self-upgrading and self-learning. By expanding the dynamic coding algorithm, to obtain a new dynamic encoding algorithm, the self-derived conversion code of the dynamic encoding algorithm is as follows:

```
import fsrrsd.util.ArrayList;
import drf. util.Arrays;
import fser.util.List;
```

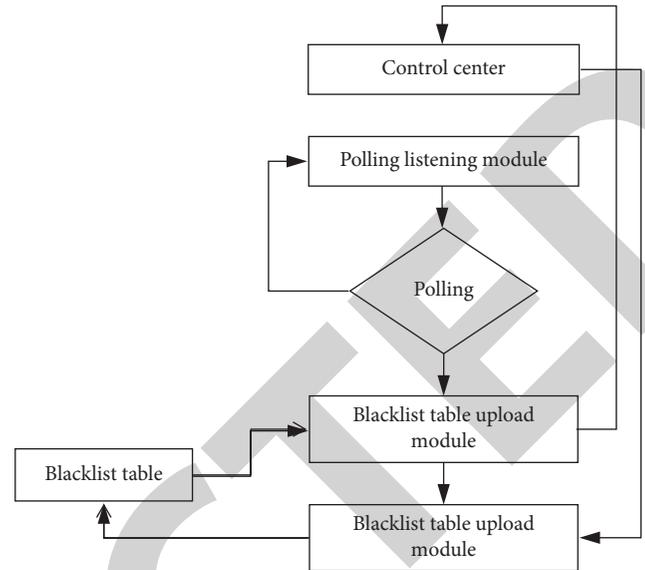


FIGURE 3: Communication agent system structure diagram.

```
public class FindKNeighbors implements Base{
/**
 * This method is used to find the nearest K neighbors to
 the_un_scored item
 * @ param score
 * @ param i
 * @ param similarityMatrix
 * @return
 */
public List<Integer> findKNeighbors(int[] score, int i,
double[][] similarityMatrix){
List<Integer>neighborSerial = new
ArrayList<Integer>();
double[]similarity = new double
[similarityMatrix.length];
for(int j = 0; j < similarityMatrix.length; j++){
```

At this point, the underlying support library of massive multimedia information filtering technology in the big data environment has been updated, and the improved underlying support library supports common multimedia information encodings.

**4.2. Improved Algorithm Logic Rigor.** In the big data environment, the traditional multimedia information filtering technology algorithm has the problem of insufficient logic and dynamic logic bugs. When the amount of data in the big data environment increases suddenly, the logical retrieval is abnormal, and the traditional algorithm collapses and stops, resulting in a burst of multimedia information data.

In response to this problem, an auxiliary logic algorithm is added to the above dynamic coding algorithm to strengthen the stability and logical rigor of the algorithm and solve the collapse caused by abnormal data surges in the big

data environment. The auxiliary logic algorithm (ALA) is based on the internal multimedia of the big data environment. Information resources have unique encapsulation tags, which can retrieve, analyze, identify, confirm, and extract a series of process results in the internal arrangement of information under the tag. The total algorithm is automatically returned to the data, that is, the dynamic coding algorithm is used for identification and confirmation [14-15]. The formula is as follows:

$$\begin{aligned} \sin kmv &= \varphi \implies fw \frac{c^2}{\text{link} \longrightarrow \prod d'} \\ \varphi' &\implies f_1 w' \frac{c^2}{\text{link} \longrightarrow \prod d_1}, \\ \varphi_1' &\implies f_2 w_1' \frac{c^3}{\text{link} \longrightarrow \prod d_2}, \\ \sin kmv^n &= \varphi_i^m \implies f w_{i-1}' \frac{c^{2^m}}{\text{link} \longrightarrow \prod d_i}. \end{aligned} \quad (2)$$

Among them, the value range of  $n$ ,  $m$ , and  $i$  is determined by the big data resource coefficient in the network space and meets the restriction condition ( $n < m \in$  big data space resource amount,  $i \neq 0$ ),  $f_1 w'$  represents the first restriction condition of dynamic data,  $f_2 w'$  represents the second constraint condition of dynamic data,  $f w_{i-1}'$  represents the constraint condition of the  $i$ -1th dynamic data,  $c$  represents the retrieval process of dynamic data,  $\varphi'$  represents the first dynamic data,  $\varphi_1'$  represents the second dynamic data,  $\varphi_i^m$  represents the  $m$ th dynamic data,  $\text{link} \longrightarrow \prod d_i$  represents the mapping process of dynamic data, and  $f_1 w'$  represents the second constraint condition of dynamic data.

When a new multimedia information data encapsulation format appears in a big data environment, the auxiliary logic algorithm will perform feature processing according to the newly emerging multimedia encapsulation format encoding the data arrangement method and return the processed new multimedia information encapsulation feature tags to the underlying encoding support library, to achieve the self-upgrading function. The improved auxiliary logic algorithm execution code adds active execution code to ensure that the auxiliary logic algorithm scans the dynamics of multimedia information in the big data environment in real time. It provides guarantee for the accurate extraction of the subsequent filtering engine.

The auxiliary logic algorithm execution code is shown below.

```
Matrix Matrix:operator+(Matrix and b)
{
//Feature overload function
if(m! = b.m||n! = b.n)
cout<<"\nEncoding or container mismatch";
exit(0);
}
```

```
Matrix c;
c.m = m;
c.n = n;
c.p = new double[m*n];
int i,j;
for(i = 0; i < m; i++)
for(j = 0; j < n; j++)
c.p[i*c.n + j] = p[i*c.n + j]+b.p[i*c.n + j];
Out(c);
returnc;
}
Matrix Matrix:operator-(Matrix &b)
{
//Retrieve overloaded functions
if(m! = b.m||n! = b.n)
{
cout<<"\nEncoding or container mismatch"
exit(0);
//Invoke the overloaded functions of the support
library
Matrix c;
c.m = m;
c.n = n;
c.p = new double[m*n];
if(m! = b.n)
{
cout<<"\nEncoding or container mismatch";
exit(0);
}
int i,j,k;
for(i = 0; i < m; i++)
for(j = 0; j < b.n; j++)upgrade"
for(c.p[i*b.n + j] = 0,k = 0; k < b.n; k++)
c.p[i * b.n + j] += p[i*b.n + k]water b.p[k*b.n + j];
Out(c);
return c;
}
```

At this point, the algorithm logic optimization of the massive multimedia information filtering technology improvement under the big data environment has been completed. The working principle of the optimized technology algorithm is shown in Figure 4.

**4.3. Multimedia Information Feature Recognition and Filtering Engine.** The multimedia information feature comparison module adopts the multimedia information core NDA construction algorithm, which has the characteristics of higher recognition rate and higher accuracy than

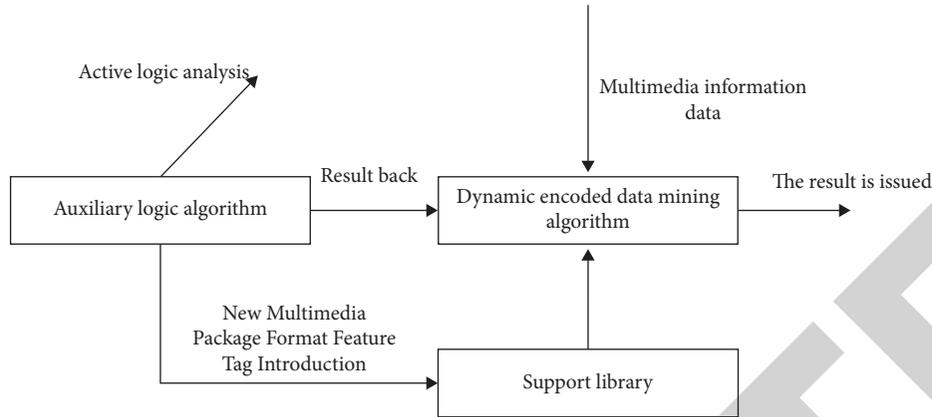


FIGURE 4: The working principle of the optimized technical algorithm.

traditional filtering algorithms. At the same time, the algorithm will write a string of dynamic identity codes at the bottom of the recognized multimedia information data. The code itself does not affect the data content where the original multimedia information is located and is only used for identification, and only this technology can recognize this code. The multimedia information core NDA construction algorithm mainly includes

```

chvd → /sd/sw/acw/da/aawa/∃
linkf → DNA↔a or b*
run/lad[dad.far]-exit
chint-jsffitc; *g{?}
Write identification code_t>.
    
```

The feature filtering classification module, as a component of the last improvement design module in the improvement of the massive multimedia information filtering technology in the big data environment, plays an important role. It uses the core DNA leakage algorithm that matches the multimedia information core NDA construction algorithm. Perform information omission processing on multimedia information data with identification codes so that similar multimedia information is filtered and arranged in a centralized manner, eliminating the need for postprocessing operations.

The kernel DNA leakage algorithm adopts the principle of different multimedia structure quantities to arrange the order frames to arrange the order frames of different types of multimedia information data in the reverse order to form a huge reverse order frame network. The multimedia information data that have been identified are passed differently according to the guidance. In the reverse intersecting frame network gap, data without the identification code cannot pass, thereby completing the filtering and classification operation of massive multimedia information in the big data environment. The execution code of the kernel DNA omission algorithm is shown below.

```

Function RemoveDNA(srDNA)
Dim objRegExp, Mach,Maches
Set objRegExp = New Regexp
    
```

```

objRegExp.IgnoreCase = True
objRegExp.Global = True
"Take the underlying code<>
objRegExp.Pa_ttern = "<.+?>"
'Make a match
Set Matches = objRegExp.Execu-te(strDNA)
'Traverse the matching set and filter out matching items
For Each Mach in Maches
strHtml = Replace(strDNA, Match.Value,"")
Next
RemoveDNA = strDNA
SetobjRegExp = Nothing
EndFunctionID3
    
```

The chart of massive multimedia information filtering under the improved data mining algorithm is shown in Figure 5:

### 5. Experiment and Analysis

The simulation experiment can be divided into time-limited test and specified sample test, as shown by the accuracy and time consumption of massive multimedia information filtering technology based on data mining algorithm.

Experiment 1 has a test time of 60 minutes, each 10 minutes as a group, and a total of 6 groups, free to operate with traditional multimedia information filtering technology and compares the number of filtering within the time. The traditional multimedia information filtering technology and the improved multimedia information filtering technology are used to filter the information, obtain the number of information filtering, and calculate the filtering accuracy rate.

Experiment 2 test samples are 40,000 pieces of multimedia information, divided into 8 groups for testing, comparing the time and filtering effect of multimedia information filtering technology and traditional multimedia information filtering technology in the improved big data environment.

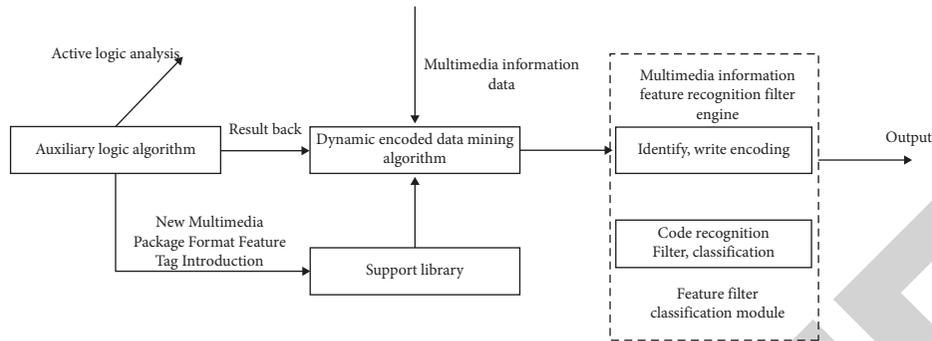


FIGURE 5: The improved work chart of filtering massive multimedia information.

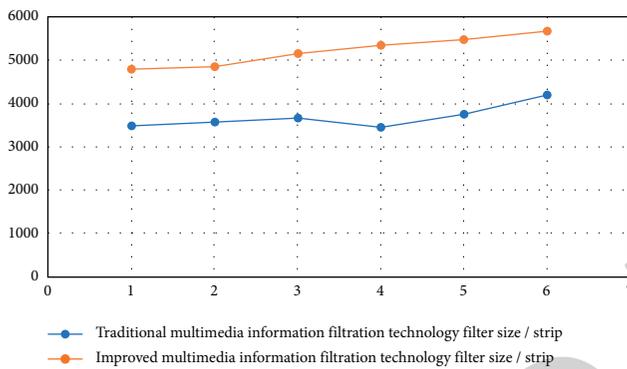


FIGURE 6: Comparison parameters of efficiency test.

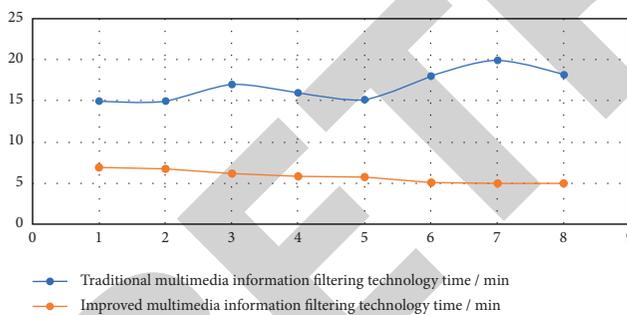


FIGURE 7: Time-use effect test parameters.

The analysis of the test results shows that, as shown in Figures 6 and 7, the massive multimedia information filtering method fused with data mining algorithms can accurately and effectively filter data packets, while ensuring a better recognition effect, and it takes a short time. The efficiency is high, and it meets the filtering requirements of multimedia information.

## 6. Conclusions

The advent of the data age has brought explosive data. How to clean up useful information from these data is the top priority of the current work. Relying on the data mining algorithm, this paper proposes a massive information multimedia filtering analysis model, which analyzes content

recognition and packet filtering, and performs matching and content analysis with the blacklist collected by the platform. If the match is consistent, direct filtering measures are taken to save money. Practice has proved that the data mining algorithm can effectively support the normal work of the system and realize the effective support of the filtering system.

## Data Availability

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

## Conflicts of Interest

The author declares no conflicts of interest.

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