

## **A Review: Image Retrieval Using Web Multimedia Mining**

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### **Abstract**

Multimedia object include audio, video, Image, text etc. where image retrieve play very important role to find any kind of image information which use in business images, satellite images, medical images and so on. Web Multimedia mining is one kind of web mining which retrieving useful multimedia information from web. Image retrieval using web multimedia mining deals with the retrieval of useful image based on the user's search requirement. This paper focus on web mining, multimedia mining which retrieve all kind of data or image information based on the search pattern of the user's.

**Keyword:** Web Mining, Multimedia Image retrieval, Image Mining, Multimedia Data Mining.

### **1. Introduction**

Web multimedia mining is not new concept because huge amounts of multimedia data or object are available on the Web in different forms. These include video, audio, images, pictures, and so on. There is an increasing demand for effective methods for organizing and retrieving such multimedia data from web.

Multimedia mining is also retrieve useful information about multimedia object and it can also be categories like image mining, audio mining and video mining.

Image mining find useful pattern or information from web multimedia mining, which can be helpful for statistical image, satellite image, forest image and so on.

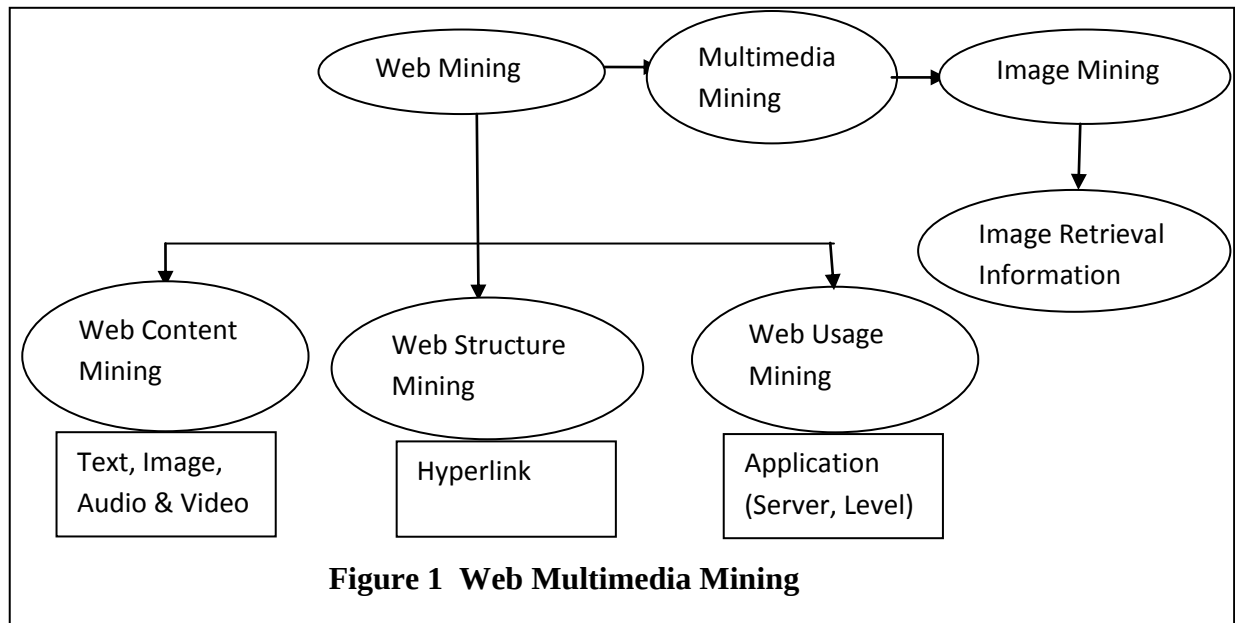
Compared with the general-purpose multimedia data mining, the multimedia data on the Web bear many different properties. Web-based multimedia data are embedded on the

Web page and are associated with text and hyperlink information. These texts and hyperlinks can also be regarded as features of the multimedia data. Using some Web page layout mining techniques, a Web page can be partitioned into a set of semantic blocks [1].

Thus, the block that contains multimedia data can be regarded as a whole. Searching and Organizing the Web multimedia data can be referred to as searching and organizing the Multimedia blocks.

## 2. Web Multimedia Mining Taxonomy

Figure 1: shows Web Multimedia Mining, according to the kinds of data to be mined. There are three distinct categories of web mining. In this figure, multimedia mining is a special category of web mining, which is divided into image mining. So that image information can retrieve according to the user requirement.



## 3. Web Mining

The web is open, global and public resources which consist of huge, diverse and dynamic information. The World Wide Web (WWW) contains large, complex all kind of information which use in different area like business, hospital and science. The different

area also contains the rich information about multimedia data which help to achieve the goals in different area.

These days World Wide Web is the major source for retrieving the information. The entire process of applying the techniques for extracting the data from World Wide Web is Web mining.

### **3.1 Web Content Mining**

This is main category of web mining. Where user retrieve huge content of image information everyday through text based or CBIR (Content Based Image Retrieval). Web Content Mining is the process of retrieving useful information from the contents of web documents. The retrieved information may contain any multimedia object like text, images, audio and video. Text mining and its application to Web content has been the most widely researched. While extracting the knowledge from images - in the fields of image processing and computer vision - the application of these techniques to Web content mining has not been very rapid. But it is ongoing process in the field of research area [2].

### **3.2 Web Structure Mining**

Web Structure Mining is the process of discovering the structure information from the Web, Which is further divided into two types based on the structure information.

**Hyperlinks:** Hyperlink objects connects a Web page either in the same Webpage or on different Web page when enter on hyperlink objects..

**Document Structure:** Web page can also be arranged in a tree-structured format, based on HTML and XML tags within the documents page.

### **3.3 Web Usage mining**

Web Usage Mining is the special category of web mining techniques in order to obtain the useful patterns from the Web, Which is a huge repository of different patterns.

#### **4. Multimedia Data Mining**

Multimedia Data Mining is an experimental stage. Multimedia Data Mining refers to the analysis of large amounts of multimedia information in order to find patterns or statistical relationships.

Multimedia Data Mining is not limited to images, audio, video or sound but encompasses text mining as well [3]. Most of the research work on multimedia system has concentrated on transmission, synchronization and management of continuous data streams of audio, video and images. Even other fields like coding, authoring, indexing, Mixing and retrieving of multimedia data are very important.

#### **5. Image Mining**

Image mining is the concept used to detect unusual patterns and extract implicit and useful data

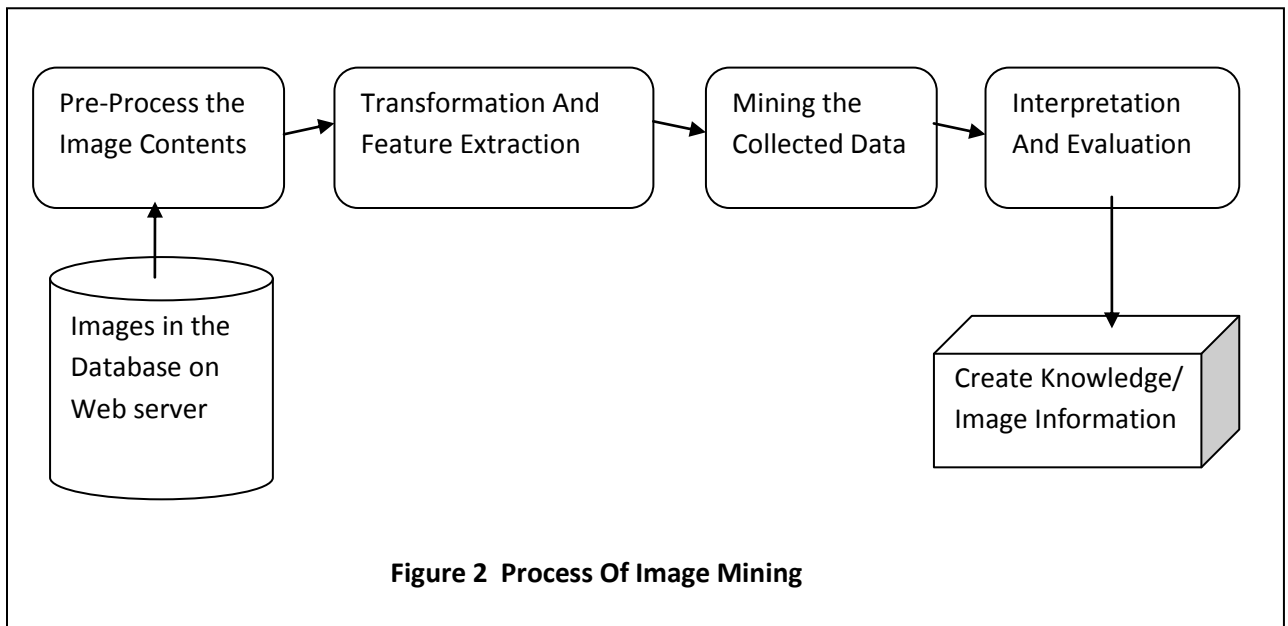
from images stored in the large data bases. Therefore, we can say that image mining deals with

making associations between different images from large image databases. Image mining is used

in variety of fields like medical diagnosis, space research, remote sensing, agriculture, industries,

and also handling hyper spectral images. Images include maps, geological structures, and biological structures and even in the educational field[4].

Figure 2: shows process of image mining, which consist of various phases for creating knowledge from image information [5].



It is one of the most important steps in Web Multimedia mining. It includes clear the image , data purging, user recognition, dialog recognition, and event recognition.

### 5.2 Transformation and Feature Extraction

Based on the image attributes one image can transform into another image. Transformation generates more elaborate representations and can yield useful results even when part of the underlying image attribute. Color, edges, shape, and texture are the common image attributes that are used to extract features for mining. Feature extraction based on these attributes may be performed at the global or the local level.

### 5.3 Mining the Collected Data

It is pattern discovering applying on image data through mining algorithm. It uses statistical analysis, association rule, clustering, and classification.

### 5.4 Interpretation and Evaluation

It is pattern analysis which transforms the rules, patterns and statistical values into knowledge. By using this knowledge, valuable patterns (interesting rules, patterns) can be obtained.

## 6. Application

Medical data, senses data and Satellite data is used in many different areas like medical information, market investment, agriculture, forestry, and environmental studies.

Image information is one of the very important objects of multimedia data which use in every different area or different field to create the knowledge from image pattern.

Moreover, the analysis and mining of traffic video sequences in order to discover information (such as vehicle identification, traffic flow, and the spatial-temporal relations of the vehicles at intersections) provide an economic approach for daily traffic operations. There are some multimedia data mining frameworks [6] for traffic monitoring systems. Furthermore, various methods for the detection of faces in images and image sequences are reported in [7]. Detection of generic sport video documents seems almost impossible due to the large variety in sports.

## 7. Conclusion

In recent year, there has been tremendous improvement in the growth of image information in the term of quality (resolution and color depth), nature (dimensionality), storage(size of pixel) throughput (rate of generation) etc[5].

The systematic reviews of existing works reveal gaps and opportunities in the field of multimedia mining, which contents non-structured heterogeneous information: audio, video, image, speech, text, graphics, icons, web logs, etc. The web multimedia mining, knowledge extraction plays crucial role in multimedia knowledge discovery.

We have addressed the overview and use of web multimedia systems. And discuss on web mining for multimedia data, some important points of multimedia mining followed by image mining for creating image information.

Issues in web multimedia mining: too much time is lost when the sequence of multimedia is ignored. The two approaches to mining ordered data, time series and event sequences, are may not be adequate for in certain cases.

In image mining an open problem remains: the combination of different types of image data. In audio and video mining, a fundamental open problem also remains: The combination of information across multiple media (combining video and audio

information into one comprehensive score). An interesting research direction on web content mining is the integration of heterogeneous information sources[2].

Image classification and retrieval are important tasks in effective search and use of image information. These advantages make it quite suitable to be included into a Web search engine for images over Internet.

## **References**

[1] Han J. and Kamber M., Data Mining: Concepts and Techniques. Morgan Kaufmann Publishers, 2006, 2<sup>nd</sup> edition, pp. 628-639.

[2] Pravin M. Kamde, Dr. Siddhu. P. Algur, A SURVEY ON WEB MULTIMEDIA MINING. The International Journal of Multimedia & Its Applications (IJMA) Vol.3, No.3, August 2011.

[3] Yoshitaka A. and Ichikawa T., A survey on content-based retrieval for multimedia database. IEEE Trans. On Knowledge and Data Engineering, Vol 11, 1999, pp. 81-93.

[4] C. Lakshmi Devasena et al. / International Journal on Computer Science and Engineering (IJCSE), ISSN : 0975-3397 Vol. 3 No. 3 Mar 2011 1155-1167.

[5] Miashra N. and Silakari S., Image Mining in the Context of Content Based Image Retrieval: A Perspective, *IJCSI International Journal of Computer Science Issues*, Vol. 9, Issue 4, No 3, July 2012.

[6] Dailey D., F. Cathey, and S. Pumrin, “An algorithm to estimate mean traffic speed using uncalibrated cameras”. IEEE Transactions on Intelligent Transportation Systems, Vol. 1, 2000, pp. 98–107.

[7] Snoek C.G.M. and M. Worring, Multimodal Video Indexing: “A Review of the State-of-the-art Multimedia Tools and Applications”, Vol. 25, No. 1, 2005, pp. 5-35.