



Survey paper on various mining methods on multimedia Images

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Abstract

Multimedia mining is a young but challenging subfield in data mining .Multimedia explanation represents an application of computer vision that presents the recognition of objects or ideas related to a multimedia document as a image. There is not unified conclusion in the concept, content and methods of Multimedia mining, Multimedia mining architecture and framework has to be further studied. there are various mining methods that we can apply on multimedia images like association rule mining, sequence mining, sequence pattern mining etc. In this survey paper we are focusing all this methods. We also discussed feature selection methods of various images.

Keywords: - multimedia mining, segmentation, image, video.



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1. Introduction

The aim to tackle the problem of image and video explanation with an emphasis on data mining techniques [1]. A mining approach, a definition of which is provided, which we roughly define as exploiting near neighbours for explanations rather than building feature-based models, more effectively utilizes the full information available to annotate multimedia, especially in the presence of similar independent explanation instances [2]. Mining represents a complementary approach to traditional computer vision techniques that focus on feature selection and modelling, and eventually vision techniques may be combined with mining in the explanation task.

Broadly speaking, the primary aim of this paper is to address the explanation problem with a mining approach as opposed to the typical visual feature modelling approach. It furthermore tackles issues that arise from aspects characteristic of social media, issues such as severance, responsibility of information, and informative use of independent tagging instances.

Explanation by mining: In comparison to much of the state-of-the-art in multimedia explanation, this work does not rely on a training set that limits the explanation set to those labels for which there is sufficient training data. Rather, it discovers the appropriate explanations in tagging instances of similar documents using techniques that model the visual, speech, or geographic space around a focus image without explanation modeling from feature primitives. Video explanation is formulate heuristically at first, and then extended to

a graph theory framework and a collaborative tagging algorithm.

Collaborative tagging: The collaborative tagging goal, gleaning trustworthy keywords from the tagging synergy of multiple online community users, is a timely problem put forth by the research community. This performs explanation on documents generated from community where independent explanations exist on both identical documents and thematically similar documents. Collaborative tagging is attempted using a graph theory approach to smooth explanations as well as using a probabilistic approach that finds the subsequent of a tag given its visual features and location [3].

Social media community analysis: This contains research on tag semantic analysis, a essential element for future effective concerted tagging. This provides analysis of identifying tag semantics mined data that can be incorporated into effective explanation algorithms.

2. Literature Survey

Numerous researches have been carried on this image mining. This section of the paper presents a survey on various image mining techniques that were proposed earlier. Developments in area of image acquisition and storage technique have shown the way for incredible growth in extensively large and detailed image databases. The images which are available in these databases, if examined, can provide valuable information to the human users. Image mining facilitates the extraction of hidden information, image data association, or other patterns not clearly accumulated in the images. Image mining is an interdisciplinary effort that provides significant application in the domain of machine learning, image processing, image retrieval, data mining,

database, computer vision, and artificial intelligence. Even though the growth of several applications and techniques in the individual research domain mentioned above, research in image mining has to be

explored in investigated the research problems in image mining, modern growth in image mining, predominantly, image mining frameworks, modern techniques and systems (Hsu, et al. 2002)[4].

Victor & Peter (2010) put forth a new minimum spanning tree based clustering algorithm for image mining. The minimum spanning tree clustering algorithm is proficient of detecting clusters with irregular boundaries. The author presented a minimum spanning tree depending on the clustering technique using weighted Euclidean distance for edges, which is vital constituent in constructing the graph from image. The technique constructs 'k' clusters with segments [3]. This approach is very much capable of protecting detail in low variability image regions while not considering detail in high variability regions which is the main advantage of this approach. This approach has handled the problems of undesired clustering structure and redundant huge number of clusters[4].

3. Related Work

1. Image Segmentation

Clustering is a classification technique. Given a vector of N measurements describing each image or group of images (i.e., region) in an image, a similarity of the measurement vectors and therefore their clustering in the N-dimensional measurement space implies similarity of the corresponding images or image groups. Therefore, clustering in measurement space may be an indicator of similarity of image regions, and may be used for segmentation purposes [2].

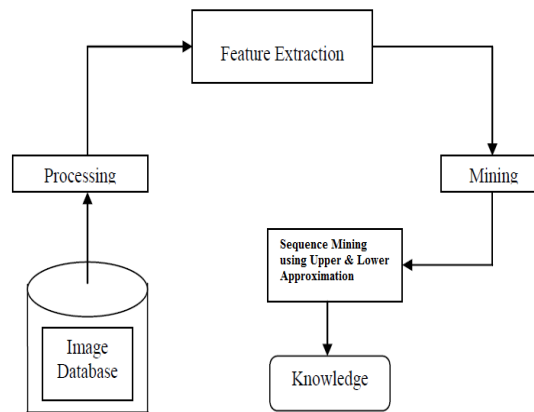


Fig 1 .Mining on multimedia data

2. Sequential mining

Today, many companies have already used computer system as data storage transaction recording, and reporting[5]. Data processing in small scale can be done by using simple database or spreadsheet e.g Microsoft Excel. Report which is created from that application is enough for analysing market for decision making. However, for big company which sell products in large scale, which is composed of hundred or thousand kind of product and selling type, that application are hardly to manage. There can be a missing knowledge from those data, which is significant for decision making, for example the pattern of the customer's purchasing. Sequential pattern works by identifying or analyzing all the sequences that often appears on an item (certain paint) purchased by the customer[6]. With the data mining of sequential data on the purchase of paint, it will produce knowledge for paint sales. Knowledge can be useful for companies to obtain information on any paint if purchased simultaneously and paint what will be purchased in a sequence so that it can generate relationships among items as well as how much paint is purchased in a sequence that in fact different .Basically data mining is closely related to data analysis and use of software to find patterns and similarities in data collection. Retrieve valuable information which is totally unexpected to extract patterns is an unseen pattern [3].

3. Association rule mining

Image ARM is concerned with the application of ARM techniques to image sets. There are many reasons why we may wish to analyse collections of images. Common example application areas where data mining techniques have been applied to image sets include medical analysis, meteorology and oceanography. These application areas have been addressed in a number of different manners but all include the recasting of the image set into a structured form that will facilitate data mining using established processes (in many cases the representation includes meta-data). The challenge of applying ARM to image data is thus the transposing of the image data into a form that;

- (a) Allows it to be used with ARM (i.e. an attribute format), and
- (b) Limits the overall number of attributes

To a manageable size [2].

4. Conclusion

This paper introduces various mining methods on multimedia data and images. At the same time, it has proposed several mining methods, but a description is primarily based on sequence mining .While leaving future opportunities in the area of map enhancement, user analysis and social media upgrading open for further investigation. Overall this paper gives snapshots of various multimedia mining methods.

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