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BAG-OF-VISUAL WORDS (BoVW) MODEL BASED APPROACH FOR CONTENT BASED IMAGE RETRIEVAL (CBIR) IN PEER TO PEER (P2P)NETWORKS.

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Abstract:

Content Based image retrieval (CBIR) is next big thing on search market. Performing content based image retrieval on internet databases connected using P2P network is the scope of our work. In case of unstructured P2P network CBIR has many challenges in terms of routing, match making etc. Authors in [1] have proposed a P2P-CBIR search engine to provide scalable image retrieval which can adaptively control the query scope and progressively define the accuracy of query results. But the problem in this solution is that query search time is high. We take this problem and propose optimizations to work in [1], so that the image search time can be reduced.

Keywords: peer-to-peer networks; Multi-instance query; content based image retrieval; scalable retrieval; network search configuration.

1. INTRODUCTION

Advancement of digital media coding and Internet technology have enabled, Peer-to-Peer (P2P) networks to share files, transferring real-time video streams, and performing ContentBased Image Retrieval (CBIR) in recent decades. In the P2P networks, each connected peer serves simultaneously as a server and a client, which can distribute computation and network traffics to peers to provide efficient streaming and CBIR services. The CBIR has been developed over the past decade since international image/video coding standards, such as JPEG, MPEG-4, H.264, and HEVC, have been widely used and distributed over Internet. The CBIR engine can help to find user interested relevant multimedia contents, either through multiinstance query or relevance feedback control. Before the CBIR search engine being developed, text information is the only precise data used to perform content similarity retrieval, such as filename, creator, and content descriptions. However, the text-based CBIR requires human annotation and content categorization, such that large scale retrieval is not feasible. In addition, the categorization and annotations would be different through different human labeling, which would bias the retrieval results. To perform server-client CBIR, the server has to record addresses and feature characteristics of all client peers. To respond a query, the server helps the query peer, P, to forward the query message, Q, to all peers with relevant contents, which would perform retrieval and transmit relevant images toward P. This centralized approach suffers heavy network traffics in that unnecessary retrieval and transmission are involved. To eliminate the centralized traffic loading, P2P CBIR is proposed.

2. RELATED WORK

The MPEG-7 standard provides normative descriptors, such as color, texture, region, and shape descriptors, for effective visual data retrieval [2]. These descriptors represent visual contents with numerical feature values from which the similarity could be measured quantitatively. They provide a numerical measurement space for image knowledge discovery and data mining (KDD). In general, one

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CBIR search engine provides the relevance feedback function to recognize user's definition on image similarity. In addition, utilizing multiple feature types would help the search engine to increase the retrieval accuracy and reduce the network traffic in the P2PCBIR system. Previous works, such as IBM's Query by Image Content (QBIC) [3], Blobworld [4], and visualSEEk [5], proposed to extract low-level features from locally segmented image regions. For the QBIC system, the objects or regions in images are segmented and labeled manually. In terms of feature description, the color, texture, and shape features could be extracted from the objects, regions, or the whole image. The Blobworld proposed to segment an image into a set of region that are coherent in color and texture features. The similarity between the query image and the one in the image database is computed through the similarity regions matching. The VisualSEEk extracts the color and texture features from the salient regions segmented in the images, and further takes the geometric properties of regions (e.g., size, absolute, and relative spatial locations) into considerations. PicToSeek [6] is an object based retrieval system, in which the invariants of color and shape features for the object in each image are evaluated based on the criteria: illumination conditions, viewpoint invariance, and geometry properties of the object.

3. EXISTING SYSTEM

At the off-line stage, an image pre-processing module was integrated in each peer to extract descriptors of new images, such as color, texture, and shape. At the on-line stage, the query peer P that received the Q performs MIMF. The problem in this approach is that the query feature is matched against each image in the peer during the online search stage. This results in bigger search time. Zhihua Xia suggests a privacy-preserving content-based image retrieval scheme which represent the images by using local features then the earth mover's distance (EMD) is utilized to estimate the similarity of images.

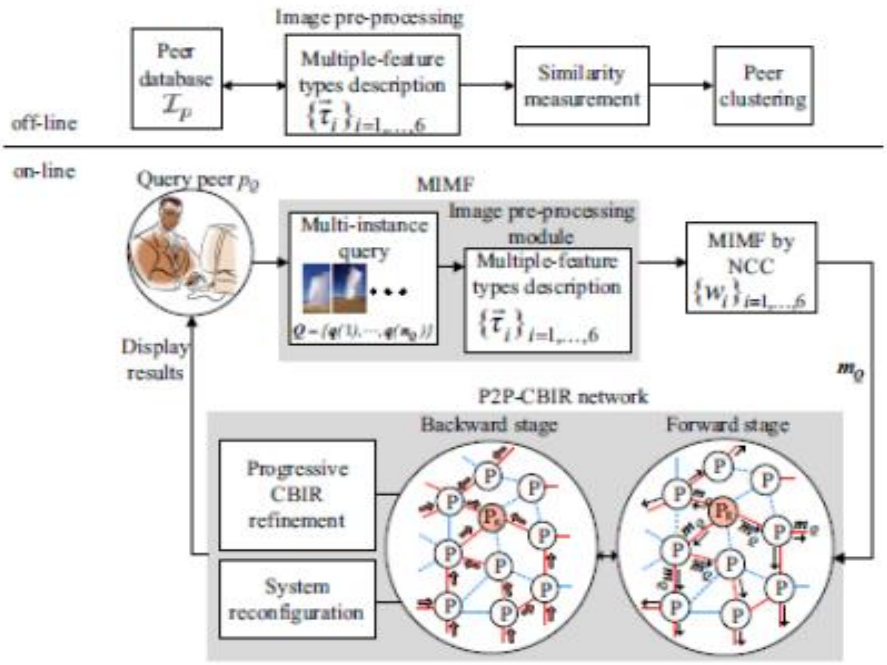

Fig.1. The P2P-CBIR system diagram.

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The EMD computation is completely a linear programming (LP) problem which is resolved by cloud server without attaining the sensitive information. In addition, local sensitive hash (LSH) is exploited to advance the search efficiency. A highly scalable, pluggable and faster cloud based CBIR system was suggested and this method is proficient of storing, processing , extracting and operating huge number of images. This new system can be scalable based on the storage and processing requirements. A supervised kernel hashing technique which advantages a limited amount of supervised knowledge in acquiring to construct a ten thousand dimensional image feature vector into tens of binary bits beside the informative indicators retained then Index the binary codes into a hash table that empower real-time retrieval of images in a large database. The supervised information is useful to overpass the semantic gap between high-level diagnostic information and low-level image features.

4. SYSTEM FRAMEWORK

An overview of our CBIR framework is given in this section as shown in Fig 3 where Query image is sustained, then low level features (texture, color and shape) are extracted using various algorithms. The distance measure is computed between the images. After computing the similarity distance based on single feature vector of any two images in the image database, normalization is enforced to ensure that distinct feature vectors in the similarity ad measurement process then the database are arranged. If the user is convinced with the results, the image retrieval process is ended. If the performance of the system is poor, Relevance feedback is required. Peers must be grouped together based on any parameters like peers in a particular geographical area. Each peer will advertise the number of requests it has received till recent to all the neighbors in its geographical area with a distance of K hops. Once all the peers have exchanged the information, the peer node with maximum number of request till now will become the cluster head. All the other peers will come the part of the cluster.

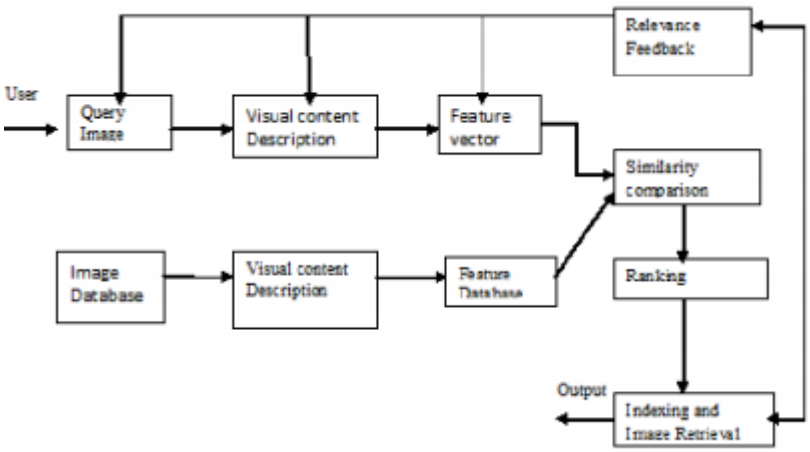

Fig.2.System Framework

A peer node can also be part of two clusters. This occurs for the case of boarder peers. The cluster head peer will start a mobile agent. This mobile agent will visit all the peers in the cluster and visit the cluster head. The mobile agent will carry information of the image feature cluster information in each peer to the cluster head peer. The mobile agent will bring the feature vector of images in each peer to the cluster head peer. Based in this clustering is again done to group the image features. The mobile agent cannot bring the all image feature information from other peers at one shot. So the clustering

algorithm which we will implement must be a agglomerative clustering algorithm. With this cluster information, a search index must be constructed. The search index will maintain the map of what features are available at the peer cluster as the whole and the whereabouts of each features in the peer cluster.

5. ANALYSIS

The databases comprise 500 images, some of which are collected from Corel image database and Caltech 101, and the others are collected from professional websites.

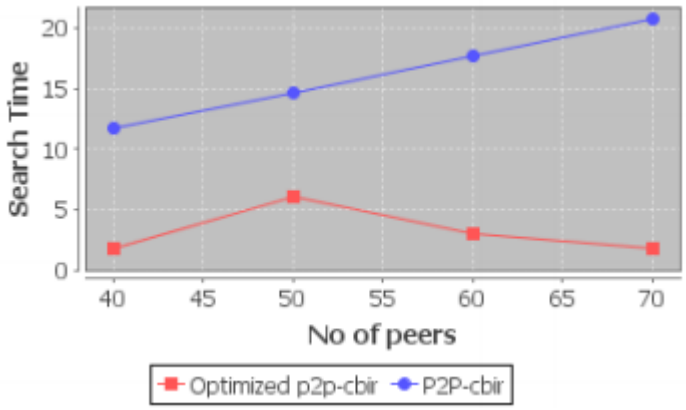

Fig.3. System Peers

Each peer is distributed 15 images randomly different categories. For peer clustering, each peer records three random links and two attractive links for CH, SCD, CSD, CLD, EHD and DWT features, respectively. From the performance result, we see that the search time is less than the P2P-cbir system proposed in [1]. The reason for this reduction is because of the peer search index maintained in the cluster head. Due to this, we have shortened the search area and it reflects in reduction in search time. The Hough transform is a strategy which can be used to discover features of any shape in an image and image database .The incentive for enhancing the Hough transform (HT) is clear: keep the performance, but improve the speed. Many shapes are afar extra complicated than circles, lines, or ellipses. It is generally feasible to divide a complicated shape into considerable geometric primitives, but this can point to a highly convoluted data structure. Almost, it is more favorable to extract the exclusive shape. The generalized Hough transform (GHT) is availed to uncover arbitrary shapes with anonymous position, orientation and size. The generalized Hough transform (GHT) is properly defined by examining the artifice of a curve. One desirable implementation might be based on the distinct representation presented by tabular functions.

CONCLUSION

The Hybrid feature extraction scheme for content based image retrieval is proposed in this paper. Hybrid feature extraction scheme which is a integration of shape, color and textue features. For the given Query image, the low level features (shape, color, and texture) are extracted using different algorithms. then the similarity measurement is performed to image retrieval. The data set contains exactly 1000 randomly-selected images for experiment. When the results are displayed, the users have the opportunity to deliver feedback on every image by Relevance feedback. Our approach persistently increase CBIR performance for the given image set by increasing accuracy in image retrieval.

REFERENCES

[1]. Chun-Rong Su, Jiann-Jone Chen, and Kai-Lin Chang "Content-Based Image Retrieval on Reconfigurable Peer-toPeer Networks" 2013 International Symposium on Biometrics and Security Technologies.

[2]. Overview of the MPEG-7 Standard (version 10). ISO/IEC JTC1/SC29/WG11 N6828, Oct. 2004.

[3]. M. Flickner, et al., "Query by image and video content: the QBIC system," IEEE Computer, vol. 28, no. 9, pp. 23-32, 1995.

[4]. C. Carson, et al, "Blobworld: image segmentation using expectation maximizations and it application to image querying," IEEE Trans. Pattern Anal. Mach. Intell., vol. 24, pp. 1026V38, 2002.

[5]. J. R. Smith and@S. F. Chang, "Visualseek: a fully automated contentbased image query system," in Proc. ACM Multimedia, 1996.

[6]. T. Gevers and A. Smeulders, "Pictoseek: combining color and shape invariant features for image retrieval," IEEE Trans. Image Process, pp. 102-119, 2000.

[7]. P. Natsev, et al., "WALRUS: a similarity matching algorithm for image databases," Technical report, Bell Laboratories, Murray Hill, 1998.

[8]. R. Rahmani, et al., "Localized content based image retrieval," IEEE Trans. Pattern Anal. Mach. Intell., 2008