Analysis of Image Revival through Visual Attention & Saliency Ingredient

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ABSTRACT

The express use of internet and multimedia technology, people regularly generate partial-duplicate images for sharing of picture, information delivery, and so on. Unlike in traditional image retrieval, the duplicate regions in partial same images are only parts of the whole images and the various kinds of Technique involve scale, viewpoint, Brightness, and resolution. Such technique makes the retrieval task more complicated and challenging. Nevertheless, partial duplicate image Revival is expecting by various real world applications (such as fake image detection, copy protection, and landmark search) and thus has Attention increasing research attention.

In object based image retrieval methods usually use the Full image as the query. This technique has been in comparison with the text retrieval system by using the bag of visual words (BOV) [3]. There is Plenty of background noise in the images and impossible to perform interaction operation on the large scale Directory of the images. Two observations are makeable as a user point of view. First, people show various region through the images which are shared on the web, we also expect that the returned result also focus on the main parts. Regions of interest are only found in salient region of the retrieval. Second and the similar region in the returned result also same to the salient region of the images. To filter out the non-salient region from the image, which able to remove the background noise we introduce visual attention analysis technique. We also want to produce saliency region which Contain the expected visual contents.

Keyword: - *Bag of Visual Word(BOV), Partial duplicate image, visual attention ,Saliency Region. Visual Salient and Rich Region(VSSR)*

1.INTRODUCTION

In this paper, we invite a partial duplicate image retrieval scheme based on nearest saliency visual matching. We abstract visually salient and rich region (VSRR) from the input image. We Obtain the VSRR using a BOV model. To achieve a lower regeneration error and obtaining a sparse representation at the region level we use a group sparse coding. We are compute our result of image retrieval performance with other image database and show the effectiveness and efficiency of our approach of image retrieval.[7].

To give the direction to these challenges in partial duplicate image retrieval, we first Preface visual attention analysis [13][15] to clarify the non-salient regions from an image, which also helps to discard some background noises in the images. Computationally removing the non-salient regions is a useful solution for preferentially allocating Computational resources in successive image analysis another characteristic of the partial-duplicate regions is they Contain rich visual object. Previous technologies were not able to Assurance that the saliency regions generated would Contain rich visual object. To ensure regions with high visual content, we preface a visual content analysis algorithm to re-filter the saliency regions.

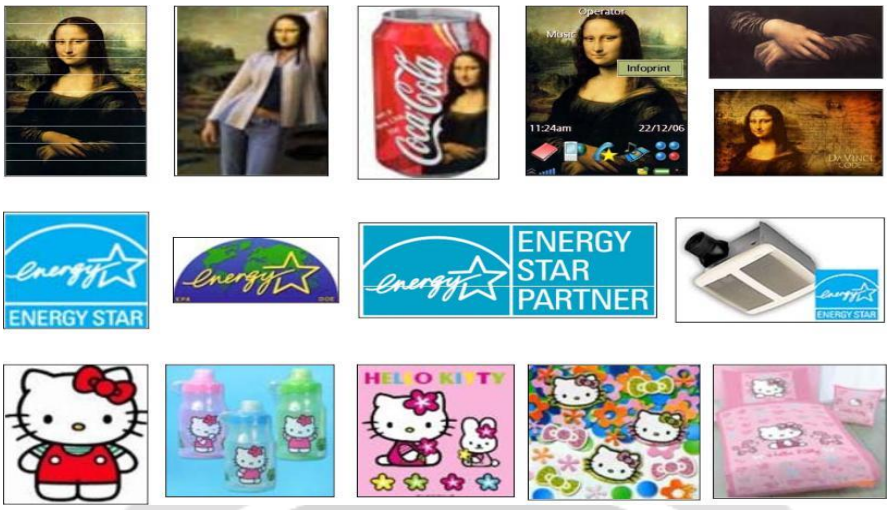

Fig1. Example of Duplicate web images

2. PARTIAL DUPLICATE IMAGE RETRIEVAL.

We invite partial duplicate image retrieval tactic based on visual attention and saliency ingredient [2]. We use the group sparse coding to obtain visually salient and rich region that is (VSRR) in the images as revival units. BOV model used to obtain VSRR.

2.1. VSRR Generation:

VSRR contain main region from image which having rich visual contents and visual saliency [1]. The VSRR creation process is mainly stepped into four different areas such as Sensitive unit construction, generation of saliency map, VSRR generation and finally selection of extreme VSRR. The resulted image decomposed into the VSRR sets. We detect VSRRs for retrieval unit for partial-duplicate image retrieval. We Show a VSRR as an image region that has high visual content and visual saliency. In VSRR algorithm we count visual content as

$$Score = \sum_{i=1}^{K} \frac{1}{N} \times ni$$

Where ni , Ni ,are the numbers of i visual word in the VSRR and total database accordingly and k having the dictionary size and ni reflect the repeated structure in the VSRR , 1/ Ni captures the in formativeness of visual word.

2.2 Sensitive Unit Generation

Sensitive unit is Compute as image patch that contain the midpoint of field which ready to accept new fields around it. For that in many cases graph base segmentation algorithm this merges smaller size piece with same appearances and small minimum spanning tree weight.

2.3. Saliency Map Generation

The particular regions of the image which contain strong contrast with their surrounding bring human attention. This spatial relationship gives an important role in visual attention. The region having high ly attention which is highly contrasted with its adjacent region than the high contrast with its long away region. Saliency map is computed on the support of spatial relationship with of the contrast region.

This technique is used to separate the object from their environs. With the help RGB color the color histogram is generate then the sensitive unit its saliency value is computed by measuring color contrast of other perceptive units contain in the image. The weight of spatial relationship is means as increase the effect of near region and decrease the effect of further region.

2.4 Generation of VSRR

The specific main region of the image which contains strong contrast with their surrounding attracts human attention. This spatial relationship shows an main role in visual attention. The region having prime attraction which is highly contrasted with its near region than the high contrast with its faraway region. We find out saliency map on the basis of spatial relationship with the contrast region. This technique is used to find the object from their environs.

Once the saliency map gets generated the next step is to find the saliency region by saliency division and then obtain the original VSRR by filtering the saliency [1] [2]. After filtering we select the VSRR Which includes big numbers of visual content.By binarizing the saliency map using threshold we separate saliency map into back and initial saliency region. On the initial saliency region we apply grab cut. Grab cut is an interactive weapon for foreground segmentation in still images using iterated graph cuts. Finally a group of region is produced which is known as original VSRR. After obtaining the VSRR, the popular image representation in image retrieval is closer neighbor vector quantization (VQ) which is based on the BOV model.

3. LITERATURE SURVEY

For evaluation metric we use mean average precision (MAP). We compute its average precision (AP) for each query image, then we take a mean value of all query images. Bellow shows some literature survey.

Table -1: literature survey

Sr No	Author	Title	Year	Remark
01	J. Sivic and A. Zisserman	A Text Retrieval Approach to Object Matching in Videos	2003	The analogy with text retrieval really has demonstrated its worth they have immediate runtime object retrieval through a movie database despite significant view point changes in many frame
02	Z. Wu et al	Adding Affine Invariant Geometric Constraint for Partial- Duplicate Image Retrieval	2010	They introduce the affine invariant matrix to improve the original geometric verification step in bundle feature.
03	H.Jegou et al	Aggregating Local Descriptorsinto a Compact Image Representation	2010	Many state of the art large scale image search system follow the same paradigm statistic competed from local invariant features are aggregated in to an image level vector significant which is Subsequencial compressed and indexed for computational and memory efficiency
04	Wengang Zhou,Houqiang, YijuanLu,qi tian	Large scale partial duplicate image retrieval with bi-space quantization and geometric consistence	2010	It performance SIFT feature quantization in bi-space and impose spatial consistency constraints for large scale partial duplicate web image retrieval. After quantization the geometric consistency is embedded for image retrieval formulation.

05	X. Wang et al	Contextual Weighting for Vocabulary Tree Based Image Retrieval	2011	They propose two new scheme to improve the vocabulary tree based image retrival which consider contextual excellent a local feature in both descriptor and spatial domain
06	Liang Li,Zhipeng wu,zheng jun zha,shuqiang jiang,qingming huang	Matching content based saliency regions for partial supplicate image retrieval	2011	A new Prospective for partial duplicate image retrieval with content based saliency region
07	Zhi li,Guizhoug,yan a Ma	Large scale partial-duplicate image Retrial using Invariance weight of SHIFT and SROA geometrics Consistency	2012	They Improve the performance of image retrial a large scale partial-duplicate image retrial schema using invariance weight of SIFT and SROA geometric consistency based on bundle feature
08	Lingyang chu,shuqiang,sh uhui wang,yanyan zhang,qingming huang	Robust spatial consistence graph model for partial duplicate image retrieval	2013	They proposed a rotation invariant PDIR method which improves the image retrieval performance by exploiting the group spatial of visual word matches
09	Qian Zhang,hao Fu,Guoping Qiu	Tree partion voting min-hash for partial duplicate image discovery	2013	Developed a novel tree partition voting min-hash (TmH) approach for partial image discovery
10	Etienne gadeski,herve Le borgne,Adrian popescu	Duplicate image detection in stream of visual data	2015	They propose an efficient and robusting image descriptor which is well adapted for indexing and searching large visual data streams
11	Wei li,changhu wang,lei zhang,Yong Rui,Bo Zhang	Partial-Duplicate Clustering and visual pattern Discovery on web scale image database	2015	A novel and highly scalable framework to cluster partial duplicate image and discover visual patterns in the web scale image database.
12	S.N.Bhojane,P. R.Furane	Partial Duplicate image retrieval using fast visual word generation Technique	2015	Visual word has been generated with with W-tree techniques which exploited spatial information of visual word.

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4. INDEXING AND RETRIEVAL TECHNIQUES

4.1. First Inverted File Structure

To obtain images from huge scale image retrieval system is a difficult factor. For this inverted file index structure method is used.

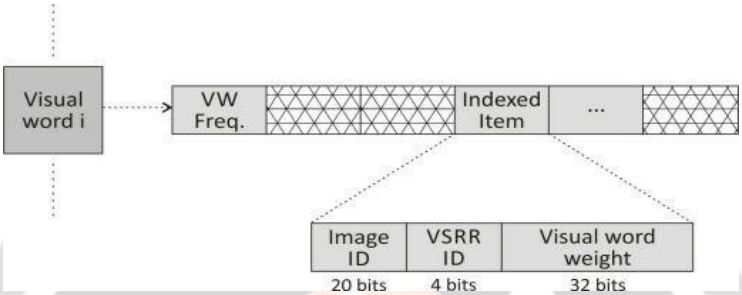

Fig2. First Inverted File System

To retrieve the result firstly search candidate VSRRs from the dataset and to redefine the result via relative saliency ordering constraint. For this method uses index structure with a bilayer inverted file. There are two inverted files, first preserves the VSRR information and second one store the saliency order of visual words in each VSSR. By using the first inverted file we obtain the ID of candidate VSRR and image which is input given to the second inverted file.

Figure 2 shows first inverted file System. For each visual word in the dictionary D. this structure save the listing of VRSS have contains visual word occurs and its term weight. In figure VW freq. is the sum of weight of visual word *i* which is calculated by the code of the visual word *i* by GSC for one VSRR. This files Uses for sparseness to index images and allows fast searching of candidate VSRR.

4.2. Second Inverted File Structure

Figure 3 shows second inverted file System. This structure saves the information of every VSRR. "VSRR area" is the pixel count of VSRR. "VW count" is total number of visual words in VSRR. "VW i" is ID of the visual word I. These visual words are arranged according to their saliency value in rising order. Dictionary D is different in first and second inverted file. Dictionary D is generated by a hierarchical K means clustering.

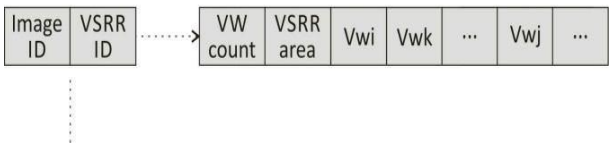

Fig3. Second Inverted File System

5. CONCLUSION

We invite a method for saliency computation based on an image abstraction by using contrast based saliency measures; our refine based formulation allows for efficient computation and produces per-pixel saliency maps, with the currently best performance in a ground truth comparison

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