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Image Retrieval on LBP for Multimodality Fusion

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Abstract- Images are being used since many years in all spheres including Forces, Treatment of injuries and diseases etc. But in the past few years, number of images has increased in huge amount due to the growth of web database. So, in vast and varied collection, users of different domains face a problem of retrieving images relevant to the user query. The semantic association rules mining is constructed at the offline phase where the association rules are discovered between the texts semantic clusters and the visual clusters of the images to use it later at the offline phase. Multimodal will refer to the ability to represent process and analyze two data modalities simultaneously textual keywords or unstructured images.

Key words: Feature extraction, matching, text and visual field, k means, LBP.

INTRODUCTION

Image Retrieval is the science of locating images from a large database or image sequences that fulfill a specified image need. And the relationship between queries, images, meaning, and relevance is considered as a foundation for image retrieval system. With the passage of time many image retrieval systems have been developed [5]. Text-based image retrieval and content-based image retrieval are the two techniques adopted for search and retrieval in an image database. In this approach Metadata such as Keywords are used to search and retrieve images from the database. But this approach is not considered as valid because different users can use different keywords for annotations. [1] This method can be subjective and incomplete because it cannot specify complicated image feature perfectly .Multimedia fusion has become in a very interesting field of research in recent times for Information Retrieval (IR) and search in Multimedia Databases or on the Web. In the particular case of image retrieval, both textual and visual features are usually provided: annotations or metadata as textual information, and low level features (color, texture, etc.) as visual information [1].

The idea behind multimedia fusion is to exploit the individual advantages of each mode, and use the different sources as complementary information to accomplish a particular search task. In an image retrieval task, multimedia fusion tries to help in solving the semantic gap problem while obtaining accurate results. Currently, most Web based images search engines rely purely on textual metadata. That produces a lot of garbage in the results because users usually enter that metadata manually which is inefficient, expensive and may not capture every keyword that describes the image. On the other hand, the Content Based Image Retrieval (CBIR) systems can filter images based on their visual contents such as colors, shapes, size or any other information that can be derived from the image itself which may provide better indexing and return more accurate results [2]. At the same time, these visual features contents extracted by the computer may be different from the image contents that people understand. It requires the translation of high-level user perceptions into low-level image features and this is the called ―semantic gap‖ issue. This issue is the reason behind why the CBIR systems are not widely used for retrieving Web images. A lot of efforts have been made to bridge this gap by using different techniques. The major categories of the state-of the- art techniques in narrowing down the Combining textual pre- filtering with visual re-ranking in order to solve the semantic gap in a Multimedia Information Retrieval (MIR) setting .In a human search, there is an important gap between the low-level features that search engines use and the human perception (semantic gap). The TBIR (text-based image retrieval) systems can better capture the conceptual meaning of the question than CBIR (content based image retrieval) systems [5]. Then, the CBIR system better succeeds in this semantically reduced collection avoiding false positives, that is, images visually similar from the low-level visual features but with different concept meaning. Furthermore, CBIR process will be significantly reduced, both in terms of time and computation. These textual pre-filtering techniques have been successfully in global ranking, Most of the fusion techniques in image retrieval are based on combining monomodal (textual and visual) results following symmetric schema as [2]. In Web medium, the

representation of images can be naturally split into two or more independent modalities such as visual features (color, shape, size) and textual feature Truly, we live in a multimodal world, and we as humans always take the benefit of each media for sensory interpretation to narrow the semantic gap problem and enhance the retrieval performance by fusing the two basic modalities of Web images, i.e. textual and visual features for retrieving.

LITERATURE SURVEY

The information retrieval community found the power of fusing multiple information sources for increasing the retrieving performance [3]. Information fusion has the potential of improving retrieval performance by relying on the assumption that the heterogeneity of multiple information sources allows cross correction of some of the errors, leading to better results [4].Depending on the available information in a certain field, different fusion techniques is defined. In [2] Graph based methods has been presented, which is similar to trans-media fusion technique for image retrieval. Indeed, both approaches use similarity matrices to rank. Graph based methods is a kind of state of-the-art effectiveness of the FAR mining. In order to build the semantic classifier, a fuzzy rule base was established in the training phase, which contained the best FAR with the highest evaluation measure. Classification was performed in the testing phase using fuzzy inference engines. Class hierarchies are a common way for reducing the complexity of the classification problem, especially when dealing with a large number of classes because some classes are more closely related than other beneficial to apply a recursive top-down approach to hierarchical classification: first, discriminate the subsets of classes at the top level of the hierarchy and then to recursively separate the classes (or sets of classes) in those subsets. In [12] Late fusion is specified for combining different rankings, is also referred to as data fusion. In information retrieval, data fusion merges the retrieval results of multiple systems and aims at achieving a performance better than all systems involved in the process. There are several algorithms to combine rankings that are well known in the information retrieval community, such as linear combination of ranking, voting algorithms inspired in social sciences among others. Simple algorithms based on sets operations to merge ranking lists have been evaluated for image retrieval, using a text search engine and a content-based image retrieval system .In addition, showed that linear combinations of text and visual rankings may lead to better results than each individual system. In [13] Early fusion specifies an aim to build an integrated representation of multimodal data to take advantage of implicit relationships and normalize the feature vector representations of each modality. For image retrieval this approach has also been evaluated and extended using Latent Semantic Indexing. An image is considered a document with text data in a vector space model and visual patterns represented by a bag of features. Both representations are projected together to a latent space in which the search for similar images is performed. Canonical Correlation Analysis (CCA) has also been proposed to find relationships between visual patterns and text descriptions web image collection to identify links between visual and text representations in order to solve cross modal queries. More recently, the problem of early fusion has been reformulated as a subspace learning problem that offers both dimensionality reduction and feature fusion. The general problem of feature fusion is of great interest in multimedia processing for applications in classification and retrieval tasks. In [9] Multimedia fusion tries to use the different media sources as complementary information to increase the accuracy of the retrieved results, in order to help in solving the semantic gap problem, referred to the difficulty in understanding the information that the user perceives from the low level characteristics of the multimedia data. Specifically, in the case of Image Retrieval, the semantic gap is the lack of correspondence between the information from visual features (e.g., histograms) and the interpretation of these data by a user in a certain situation (visually similar images to the query in terms of low level features can be very different in terms of meaning). The benefits of multimedia fusion, balancing the cost and complexity of the implementation and deployment and providing correct and complementary information to the monomodal results. When multimedia approaches are used, several aspects have to be taken into account in order to select the most appropriate.

CONCLUSION

In this paper, past and current technical achievements in content based image retrieval system are reviewed. The technology of content based image retrieval system is yet immature and used in few commercial applications which provide a comprehensive survey of feature extraction techniques, semantic gap reduction techniques. It is concluded that although significant amount of work has been done in this area but still there is no generic approach for high-level Semantic based image retrieval. To design a full-fledged image retrieval system with high-level semantics requires the integration of primitive feature extraction and high-level semantics extraction parameters. Open research issues are identified and future research directions suggested.

REFERENCES

[1]. J. A. Aslamand M. Montague, ―Models for metasearch,‖ in Proc. 24th Annu. Int. ACM SIGIR Conf. Res. Develop.‖ Inform. Retrieval‖, New Orleans, LA, USA, 2001, pp. 276–284 2013.
[2]. Gabriela Csurka1, Julien Ah-Pine2, and Stéphane Clinchant1 ―Unsupervised Visual and Textual Information Fusion in Multimedia Retrieval - A Graph-based Point of View‖ arXiv:1401.6891v1 [cs.IR] 27 Jan 2014.

[3]. Nikhil Rasiwasia, Jose Costa Pereira, Emanuele Coviello, Gabriel Doyle, Gert R. G. Lanckriet, Roger Levy, and Nuno Vasconcelos. A new approach to cross-modal multimedia retrieval. In ACM Multimedia, 2010.
[4]. Wu Siqing; Xiong Gang, Wang Geng,Zhang Guoping Consumer Electronics,‖ Digital-image retrieval based on shape-feature and MPEG-7 standard‖, International Conference 2011.
[5]. Abolfazl Tazaree & Amir-Masud Eftekhari-Moghadam & Saeedeh Sajjadi-Ghaem-Maghami ‖A semantic image classifier based on hierarchical fuzzy association rule mining‖ # Springer Science+Business Media, LLC 2012
[6]. S. Clinchant, G. Csurka, and J. Ah-Pine, ―Semantic combination of textual and visual information in multimedia retrieval,‖ in Proc. 1st ACM Int. Conf. Multimedia Retrieval, New York, NY, USA, 2011.
[7]. G. Csurka,S.Clinchant, andA. Popescu, ―XRCEandCEALIST's ―Participation at Wikipedia Retrieval of ImageCLEF 2011,‖ in CLEF 2011Working Notes, V. Petras, P. Forner, and P. Clough, Eds., Amsterdam, The Netherlands, Sep. 2011.

[8]. A. Depeursinge and H. Müller, ―Fusion Techniques for Combining Textual and Visual Information Retrieval,‖ in ImageCLEF: Experimental Evaluation in Visual Information Retrieval. Berlin, Germany:Springer-Verlag, 2010.
[9]. T. Deselaers, D. Keysers, and H. Ney, ―Features for image retrieval: An experimental comparison,‖ Inf. Retrieval, vol. 11, pp. 77–107, Apr.2008.
[10]. H. Escalante, C. Hernadez, L. Sucar, and M. Montes, ―Late fusion of heterogeneous methods for multimedia image retrieval,‖ in Proc. 1st ACM Int. Conf. Multimedia Inf. Retrieval, 2008.
[11]. E. A. Fox and J. A. Shaw, ―Combination of multiple searches,‖ in Proc. 2nd Text Retrieval Conf., 1993.
[12]. A. García-Serrano, X. Benavent, R. Granados, E. de Ves, and J. Miguel Goñi, ―Multimedia Retrieval by Means of Merge of Results from Textual and Content Based Retrieval Subsystems,‖ in Multilingual Information Access Evaluation II. Multimedia Experiments: 10th Workshop of the Cross-Language Evaluation Forum, CLEF 2009, Corfu, Greece,September 30 - October 2, 2013
[13]. A. García-Serrano, X. Benavent, R.Granados, and J. M.Goñi-Menoyo, ―Some results using different approaches to merge visual and textbased features in CLEF'08 photo collection,‖ in Evaluating Systems for Multilingual and Multimodal Information Access: 9th Workshop of the Cross-Language Evaluation Forum, CLEF 2008, Aarhus, Denmark, September 17-19, 2008, Revised Selected Papers. Berlin, Germany: Springer-Verlag, 2009.
[14]. Harpreet Kaur, Kiran Jyoti ― Survey of Techniques of High Level Semantic Based Image Retrieval‖ International Journal of Research in Computer and Communication technology, ijrcct, issn 2278-5841, Vol 2,Issue 1, January 2013.

