ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Vol. 3, Issue 11, November 2015

A Survey on: Personalized Geo-Specific Tag Recommendation for Photos on Social Websites

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ABSTRACT: Now a day's social tagging is an important in social websites to provide a good tagging for photos uploaded to the websites to access high quality social tags. Tag recommendation by automatically assigning related tags to photos to find out particular interesting area. In this paper we concentrate on the personalized recommendation work and try to choose user preferred geo-location specific as well as relevant tags for photos on social website. For users and geo-locations we assume they have various preferred tags assigned to a photo and purpose a subspace learning method to individually uncover the user preference and geo-location preference. The goal of our work is to combine a visual and textual space into a unified subspace. According to unified subspace is mapped from the intermediate subspace and textual subspace respectively. We create formula for above learning problems into united form and present the minimization with its convergence rule. For a given an untagged photo with its geo-location to a user we used the nearest neighbor search in the relating unified space. The user preferred and geo-location specified tags. Experiments on big scaled data sets collected from flicker examine the effectively of the proposed system.

KEYWORDS: Geo-location preference, User preference personalized recommendation, Subspace learning, Tagging history.

I.INTRODUCTION

Due to the increasingly popular of GPS-enable camera devices and mobile phones, now a day's have witnessed potential growth of personal photos like tags, geo-location and visual attributes (colors and textures) [1]. In addition many photo sharing websites like Flicker, Corbis, Picasa and Zoomed access millions of users to upload and share their personal photos by their smart phones or other internet devices. A tag is a non-hierarchical term assigned to a data (such as an internet bookmark, digital image or computer file).Tagging allows user to find out related images when retrieving that image later. User can assign tags for photos but it is very time consuming. Tag recommendation specifies user to assign more tags in connecting gap between user concept and features of media images, which provide probable solution for CBIR (Content Based Information Retrieval). Many tag recommendation methods have worked upon connection between tags and photos [1].

Quality of tagging is reduced with the human based tag assignment. As per the M.wang, B. Ni et.al [1] proposed three techniques for tagging that improve manual tagging and automatic tagging: 1) Tagging with data selection and organization: manual process for tag selection from data. 2) Tag recommendation. 3) Tag processing: - It is process of refining tags or adding new tags.

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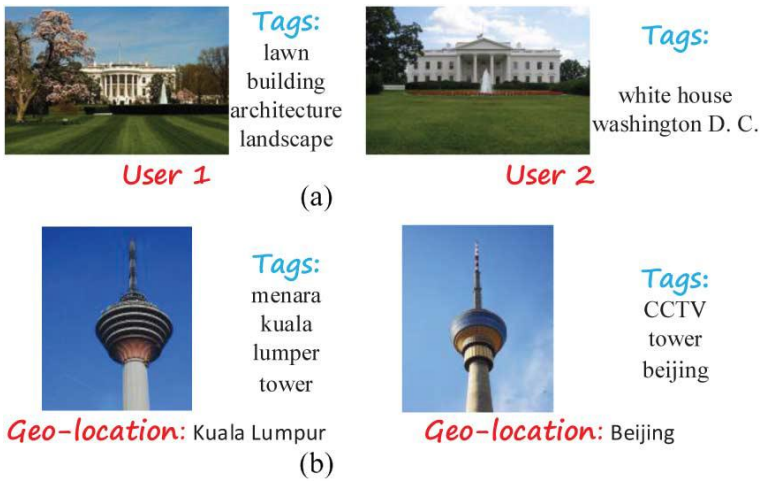

Figure1: Tagging Behaviour of user.

II.LITERATURE SURVEY

"T. L. Berg, A. C. Berg, and J. Shih" Proposed in It is common to use domain specific terminology – attributes – to describe the visual appearance of objects. In order to scale the use of these describable visual attributes to a large number of categories, especially those not well studied by psychologists or linguists, it will be necessary to find alternative techniques for identifying attribute vocabularies and for learning to recognize attributes without hand labelled training data [2]. We demonstrate that it is possible to accomplish both these tasks automatically by mining text and image data sampled from the Internet. The proposed approach also characterizes attributes according to their visual representation: global or local, and type: colour, texture, or shape. This work focuses on discovering attributes and their visual appearance, and is as agnostic as possible about the textual description [2].

"Y. Shen and J. Fan" Proposed the Large-scale loosely-tagged images (i.e., multiple object tags are given loosely at the image level) are available on Internet, and it is very attractive to leverage such loosely-tagged images for automatic image annotation applications [3]. In this paper, a multi-task structured SVM algorithm is developed to leverage both the inter-object correlations and the loosely-tagged images for achieving more effective training of a large number of inter-related object classifiers. To leverage the loosely-tagged images for object classifier training, each loosely-tagged image is partitioned into a set of image instances (image regions) and a multiple instance learning algorithm is developed for instance label identification by automatically identifying the correspondences between multiple tags (given at the image level) and the image instances. An object correlation network is constructed for characterizing the inter-object correlations explicitly and identifying the inter-related learning tasks automatically. To enhance the discrimination power of a large number of inter-related object classifiers, a multi-task structured SVM algorithm is developed to model the inter-task relatedness more precisely and leverage the inter-object correlations for classifier training. Our experiments on a large number of inter-related object classes have provided very positive results [3].

"J. Tang, S. Yan, R. Hong, G.-J. Qi, and T.-S. Chua"has [4] Proposed in this paper, we exploit the problem of inferring images' semantic concepts from community-contributed images and their associated noisy tags. To infer the concepts more accurately, we propose a novel sparse graph-based semi-supervised learning approach for harnessing the labelled and unlabelled data simultaneously. The sparse graph constructed by datum-wise one-vs.-all sparse reconstructions of all samples can remove most of the concept-unrelated links among the data, thus is more robust and discriminative than conventional graphs. More importantly, we propose an effective training label refinement strategy within this graph-based learning framework to handle the noise in the tags, by bringing in a dual regularization for both the quantity and sparsity of the noise. In addition, we construct an informative compact concept space with small semantic gap to infer the semantic concepts in this space to bridge the semantic gap. The relations among different concepts are inherently

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embedded in this space to help the concept inference. We conduct extensive experiments on a real-world community-contributed image database consisting of 55,615 Flickr images and associated tags. The results demonstrate the effectiveness of the proposed approaches and the capability of our method to deal with the noise in the tags. We further show that we could achieve comparable performance by inferring semantic concepts from training data with noisy tags versus training data with clean ground-truth labels [4].

"X. Li, C. G. M. Snoek, M. Worring, and A.W. M. Smeulders"[15] Proposed in given the proliferation of geo-tagged images, the question of how to exploit geo tags and the underlying geo context for visual search is emerging. Based on the observation that the importance of geo context varies over concepts, we propose a concept-based image search engine which fuses visual concept detection and geo context in a concept-dependent manner. Compared to individual content-based and geo-based concept detectors and their uniform combination, concept-dependent fusion shows improvements. Moreover, since the proposed search engine is trained on social-tagged images alone without the need of human interaction, it is flexible to cope with many concepts. Search experiments on 101 popular visual concepts justify the viability of the proposed solution. In particular, for 79 out of the 101 concepts, the learned weights yield improvements over the uniform weights, with a relative gain of at least 5% in terms of average precision [15].

"Z. Li, J. Liu, X. Zhu, T. Liu, and H. Lu" Proposed [17] theimage-word correlation estimation is an essential issue in image annotation. In this paper, we propose a multi-correlation probabilistic matrix factorization (MPMF) algorithm for the correlation estimation. Different from the traditional solutions which treat the image-word correlation, image similarity and word relation independently or sequentially, in the proposed MPMF, these three elements are integrated together simultaneously and seamlessly. Specifically, we have derived two low-dimensional sets by conducting a joint factorization upon the word-to-image relation matrix, the image similarity matrix, and the word relation matrix to derive two low-dimensional sets of latent word factors and latent image factors. Finally, the annotation words of each untagged or noisily tagged image can be predicted by reconstructing the image-word correlations with the both derived latent factors. Experimental results on the Corel dataset and a Flickr image dataset show the superior performance of our proposed algorithm over the state-of-the-arts [17].

Existing System:

- Among these applications, assigning proper tags to photos is the crucial task. Obviously, fully manual tag assignment is very time-consuming and impractical due to the massive photos and the limited screen size of the mobile devices. To make it easier, tag recommendation methods are proposed to suggest some relevant tags to a given photo and allow users to select their preferred tags, which cannot only ease the burden for users to upload and share their photos on social website, but facilitate users to tag and organize their personal images on mobile devices. However, most work attempts to learn the association between tags and photos, while the user preferences are ignored in the recommendation. Users have personal preferences for photos, which can be observed by the following two aspects.

Disadvantages of Existing System:

- The geographical information of photos should be explored in tag recommendation. Besides, some location specific tags (e.g., Eiffel Tower and Forbidden City) and location related tags (e.g., Paris and Beijing) are helpful to disambiguate some visually similar images.

III.PROPOSED ALGORITHM

System Architecture:

We seek to develop a frame-work of personalized tag recommendation by jointly exploring the tagging resources and the geo-location information in social web context. We propose a subspace learning method to individually mine user preference from her tagging history and analyze geo-location preference towards tags based on the location related tagging resources. During the individual subspace learning process, given the tagging photos specific to a user (or a geo-location), we propose to uncover a common structure to link the visual and textual domains, i.e., a unified subspace shared by the both domains, in which visual features and textual representations of photos are comparable. Considering

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the visual feature is a much lower level representation on semantics than the textual information, we first map the visual features into an intermediate space, which is required to be structure consistent with the textual space.
It generates subspace that creates latent space that is output of visual space and textual space. It recommends tags based on this embedded space and it uses content based image retrieval techniques to find and retrieve similar types of images. Those Images are recommended to user. Tag recommendation uses similarity of visual and textual similarities. It recommends tags and photos to users based on his interest, profile history, image features and geo specific interest.

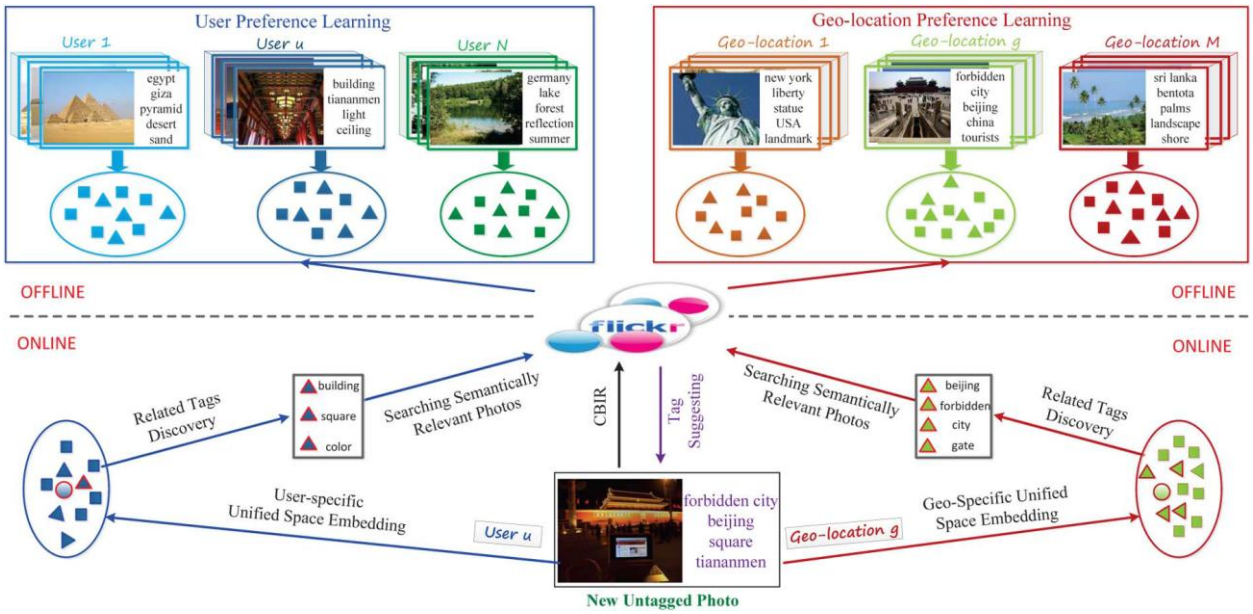

Figure 1: System Architecture of Proposed System

Modules:-

1. **Data Collection:**
   In this first module, we collect the biggest amount of images with their tags,taggers,geo-locations and related text information with collected resources. We organize the photos with respect to different users and geo-locations separately. Our aim is to find a unified space for the visual and textual information is comparable i.e the relations between the both unrelated representations can be directly constructed in the data collection.

2. **Tag Representation In Unified Space:**
   In this second module, our aim is to evaluate the connection between photos and tags we also want to secure the presentation of each tag in the unified space so as to acquire a simillarly measure to calculate the connection directly. We have finding the unified space and are suitable for insert untagged photos with visual features into this space.

3. **User Preference Learning:**
   In this module, we construct user preference learning module. Where taggers have personal preference for images which can be observed by the following two approaches. First, taggers favorite different types of images.Second, different taggers have different tags. In other words similar images would be tagged by two taggers in that different tags may be obtained.

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4. **Geo-Location Preference Learning:**
   In this fourth module, users are used to waste significant work to classify their photos albums geographically by illustrating photos with tags equivalent to position where they were taken accordingly geographical information of photos should be investigate the tag recommendation.

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Advantage:

1) We integrate the above learning problems about the intermediate space and the unified space together into a united formulation, and propose an effective optimization algorithm followed with its convergence proof.

2) We further combine the obtained tags and the visual appearance of the photo to discover the semantically and visually related images, and explore the idea of an-notation-by-search to rank tags for the untagged photo. Finally, the top ranked tags are recommended to the user

IV. Conclusion and Future Work

In this work,we suggest to mine the personalised tag for newly updated photos using user profile based information such as their tagging histories,Geographic information,Geographic location information like the latitude and longitude values.we suggest new sub-space learning algorithm to independently find the user preference and Geo-location preference regarding tags. In the suggest method,the text features and visual features of photos are mapped into a unified space using transformation matrix.in this method 3 transformation matrix are used.one matrix is used for text features and remaining two matrices are used for visual features,to find the appropriate (relevant) tags of an untagged.

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