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Enhanced Privacy Access Inference for User Uploaded Images for Images Sharing Sites in web

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Abstract: ***Social media's become one of the most important part of our daily life as it enables us to communicate with a lot of people. Creation of social networking sites such as MySpace, LinkedIn, and Facebook, individuals are given opportunities to meet new people and friends in their own and also in the other diverse communities across the world. Users of social-networking services share an abundance of personal information with a large number of "friends." This improved technology leads to privacy violation where the users are sharing the large volumes of images across more number of peoples. This privacy need to be taken care in order to improve the user satisfaction level. The goal of this survey is to provide a comprehensive review of various privacy policy approaches to improve the security of information shared in the social media sites.Usage of social media's increased considerably in today world which enables the user to share their personal information like images with the other. This improved technology leads to privacy violation where the users are sharing the large volumes of images across more number of peoples. To provide security for the information, automated annotation of images are introduced which aims to create the meta data information about the images by using the novel approach called Semantic annotated Markovian Semantic Indexing(SMSI) for retrieving the images. The proposed system automatically annotates the images using hidden Markov model and features are extracted by using color histogram and Scale-invariant feature transform (or SIFT) descriptor method. After annotating these images, semantic retrieval of images can be done by using Natural Language processing tool namely Word Net for measuring semantic similarity of annotated images in the database. Experimental result provides better retrieval performance when compare with the existing system.***

Keywords: ***Semantic annotated Markovian Semantic Indexing, hidden Markov model, Hidden Markov Model.***

I. INTRODUCTION

The term "social media" refers to the wide range of Internet-based and mobile services that allow users to participate in online exchanges, contribute user-created content, or join online communities. Online social networks are websites that allow users to build connections and relationships to other Internet users. Social networks store information remotely, rather than on a user's personal computer. Social networking can be used to keep in touch with friends, make new contacts and find people with similar interests and ideas.

The relation between privacy and a person's social network is multi-faceted. There is a need to develop more security mechanisms for different communication technologies, particularly online social networks. Privacy is essential to the design of security mechanisms. Most social networks providers have offered privacy settings to allow or deny others access to personal information details. In certain occasions we want information about ourselves to be known only by a small circle of close friends, and not by strangers. In other instances, we are willing to reveal personal information to anonymous strangers, but not to those who know us better. Social network theorists have discussed the relevance of relations of different depth and strength in a person's social network and the importance of so-called weak ties in the flow of information across different nodes in a network.

A definition for internet privacy would be the ability to control (1) what information one reveals about oneself, and (2) who can access that information. Essentially, when the data is collected or analyzed without the knowledge or consent of its owner, privacy is violated. When it comes to the usage of the data, the owner should be informed about the purposes and intentions for which the data is being or will be used.

Most content sharing websites allow users to enter their privacy preferences. Unfortunately, recent studies have shown that users struggle to set up and maintain such privacy settings [9], [10]. One of the main reasons provided is that given the amount of shared information this process can be tedious and error-prone [11], [12].

Therefore, many have acknowledged the need of policy recommendation systems which can assist users to easily and properly configure privacy settings [2], [4], [13]. However, existing proposals for automating privacy settings appear to be inadequate to address the unique privacy needs of images [14], [5] due to the amount of information implicitly carried within images, and their relationship with the online environment wherein they are exposed. The privacy of user data can be given by using two methods. 1. The user alone can enter the privacy preferences 2.Usage of recommendation systems which assist users for setting the privacy preferences.

The privacy policy of user uploaded data can be provided based on the user social environment and personal

characteristics. Social context of users, such as their profile information and relationships with others may provide useful information regarding users' privacy preferences. The privacy policy of user uploaded image can be provided based on the user uploaded image's content and metadata. A hierarchical image classification which classifies images first based on their contents and then refine each category into subcategories based on their metadata. Images that do not have metadata will be grouped only by content. Such a hierarchical classification gives a higher priority to image content and minimizes the influence of missing tags. Social media is the two way communication in Web 2.0 and it means to communicate, share, and interact with an individual or with a large audience. Social networking websites are the most famous websites on the Internet and millions of people use them every day to engage and connect with other people. Twitter, Facebook, LinkedIn and Google Plus seems to be the most popular Social networking websites on the Internet.

Today, for every single piece of content shared on sites like Facebook—every wall post, photo, status update, and video—the up loader must decide which of his friends, group members, and other Facebook users should be able to access the content. As a result, the issue of privacy on sites like Facebook has received significant attention in both the research community [1] and the mainstream media [2]. Our goal is to improve the set of privacy controls and defaults, but we are limited by the fact that there has been no indepth study of users' privacy settings on sites like Facebook. While significant privacy violations and mismatched user expectations are likely to exist, the extent to which such privacy violations occur has yet to be quantified. Images are now one of the key enablers of users' connectivity. Sharing takes place both among previously established groups of known people or social circles (e.g., Google+, Flickr or Picasa), and also increasingly with people outside the users social

circles, for purposes of social discovery to help them identify new peers and learn about peers interests and social surroundings. With the increasing volume of images users share through social sites, maintaining privacy has become a major problem, as demonstrated by a recent wave of publicized incidents where users inadvertently shared personal information. In light of these incidents, the need of tools to help users control access to their shared content is apparent. An image retrieval system is a computer system for browsing, searching and retrieving images from a large database of digital images. Most traditional and common methods of image retrieval utilize some method of adding metadata such as captioning, keywords or descriptions to the image retrieval can be performed over the annotation words. Manual image annotation is time consuming, laborious and expensive to address this, there has been a large amount of research done on automatic image annotation. Additionally, the increase social web applications and the semantic web have inspired the development of several web-based image annotation tools. Automatic image annotation [6] is the process by which a computer system automatically assigns metadata in the form of captioning or keywords to a digital image. This application of computer vision techniques is used in image retrieval systems to organize and locate images of interest from a database. This method can be regarded as a type of multi-image classification with a very large number of classes large as the vocabulary size. Typically, image analysis in the form of extracted feature vectors and training annotation words are used by machine learning techniques to attempt to automatically apply annotations to new images.

II. LITERATURE SURVEY

In [3] Sergej Zerr propose a technique Privacy-Aware Image Classification and Search [8] to automatically detect private images, and to enable privacy-oriented image search. It combines textual meta data images with variety of visual features to provide security policies. In this the selected image features (edges, faces, color histograms) which can help discriminate between natural and manmade objects/scenes (the EDCV feature) that can indicate the presence or absence of particular objects (SIFT). It uses various classification models trained on a large scale dataset with privacy assignments obtained through a social annotation game. Learning the Semantics of Words and Pictures [5] present a method which organizes image databases using both image features and associated text. By integrating the two kinds of information during model construction, the system learns links between the image features and semantics which can be exploited for better browsing, better search, and novel applications such as associating words with pictures, and unsupervised learning for object recognition. In [6] developed an approach Markovian Semantic Indexing (MSI) a new method for automatic annotation and annotation-based image retrieval. The proposed system allows the retrieval technique to benefit from the underlying structure of the annotation data. The proposal is to provide the best image based on the user query with the efficient processing. When the user clicked on the image the indexing is automatically performed and the search result will be displayed. It provides efficient and effective search result.In [7] discussed Markovian Semantic Indexing (MSI) for automatic annotation based image retrieval. This method is suitable for Annotation Based Image Retreival

(ABIR) when the per image annotation data is limited.

In the existing work, Adaptive Privacy Policy Prediction (A3P) system is used to help users compose privacy settings for their images. The A3P system consists of two main components: A3P-core and A3P-social. When a user uploads an image, the image will be first sent to the A3Pcore.

The A3P-core classifies the image and determines whether there is a need to invoke the A3P-social. In most cases, the A3P-core predicts policies for the users directly based on their historical behaviour. A3P-core will invoke A3Psocial when the user does not have enough data for the type of the uploaded image to conduct policy prediction and the A3P-core detects the recent major changes among the user's community about their privacy practices along with user's increase of social networking activities such as addition of new friends, new posts on one's profile etc. In above cases, it would be beneficial to report to the user the latest privacy practice of social communities that have similar background as the user.

The A3P-social groups users into social communities with similar social context and privacy preferences, and continuously monitors the social groups. When the A3Psocial is invoked, it automatically identifies the social group for the user and sends back the information about the group to the A3P-core for policy prediction. At the end, the predicted policy will be displayed to the user. If the user is fully satisfied by the predicted policy, he or she can just accept it. Otherwise, the user can choose to revise the policy. The actual policy will be stored in the policy repository of the system for the policy prediction of future uploads. The main disadvantages of the system are (1) Inaccurate privacy policy generation in case of the absence of meta data information about the images and (2) Manual creation of Meta data log data information leads to inaccurate classification and also violation privacy.

Jonathan Anderson proposed a paradigm called Privacy Suites [2] which allows users to easily choose "suites" of privacy settings. A privacy suite can be created by an expert using privacy programming. Privacy Suites could also be created directly through existing configuration UIs or exporting them to the abstract format. The privacy suite is distributed through existing distribution channels to the members of the social sites. The disadvantage of a rich programming language is less understandability for end users. Given a sufficiently high-level language and good coding practice, motivated users should be able to verify a Privacy Suite. The main goal is transparency, which is essential for convincing influential users that it is safe to use.

Fabeah Adu-Oppong developed privacy settings based on the concept of social circles [3]. It provides a web based solution to protect personal information. The technique named Social Circles Finder, automatically generates the friend's list. It is a technique that analyses the social circle of a person and identifies the intensity of relationship and therefore social circles provide a meaningful categorization of friends for setting privacy policies. The application will identify the social circles of the subject but not show them to the subject. The subject will then be asked questions about their willingness to share a piece of their personal information. Based on the answers the application finds the visual graph of users [15].

Kambiz Ghazinour designed a recommender system known as YourPrivacyProtector [4] that understands

the social net behavior of their privacy settings and recommending reasonable privacy options. It uses user's personal profile, User's interests and User's privacy settings on photo albums as parameters and with the help of these parameters the system constructs the personal profile of the user. It automatically learned for a given profile of users and assign the privacy options. It allows users to see their current privacy settings on their social network profile, namely Facebook, and monitors and detects the possible privacy risks. Based on the risks it adopts the necessary privacy settings.

Alessandra Mazzia introduced PViz Comprehension Tool [5], an interface and system that corresponds more directly with how users model groups and privacy policies applied to their networks. PViz allows the user to understand the visibility of her profile according to automatically-constructed, natural sub-groupings of friends, and at different levels of granularity. Because the user must be able to identify and distinguish automatically-constructed groups, we also address the important sub-problem of producing effective group labels. PViz is better than other current policy comprehension tools Facebook's Audience View and Custom Settings page.

Peter F. Klemperer developed a tag based access control of data [6] shared in the social media sites. A system that creates access-control policies from photo management tags. Every photo is incorporated with an access grid for mapping the photo with the participant's friends. The participants can select a suitable preference and access the information. Photo tags can be categorized as organizational or communicative based on the user needs. There are several important limitations to our study design. First, our results are limited by the participants we recruited and the photos they provided. A second set of limitations concerns our use of machine generated access-control rules. The algorithm has no access to the context and meaning of tags and no insight into the policy the participant intended when tagging for access control. As a result, some rules appeared strange or arbitrary to the participants, potentially driving them toward explicit policy-based tags like "private" and "public.

III. SCOPE AND PROPOSED SYSTEM

The proposed system introduced Semantic annotated Markovian Semantic Indexing(SMSI), a novel semantic retrieval of images is done based on Hidden Markov model based annotated images. Automatic image annotation phase makes use of a manually annotated training set taken to generate an annotated image database. Annotation based image retrieval phase gets a user query, and then finds similar terms for the query with the help of WordNet. Also discover the similarity between the query and images in annotated image database. Then find the similarity between matching images.

The system carries two major tasks.

- Automatic image annotation
- Annotation based image retrieval

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- Color Histogram Feature

Color histogram is simplest and most frequently used to represent color. The color histogram serves as an effective representation of the content. Color is one of the most important features of images. Color features are defined subject to a particular color space or model. A number of color spaces have been used such as RGB, LUV, and HSV.

Once the color space is specified, color feature can be extracted from images or regions. An important color features namely color histogram is extracted. Color histograms are frequently used to compare images. In this gray level variations are used to compute the histogram of any image. For this purpose the color image is first converted in to gray level image. Then the histogram values are computed for gray level variations. According to histogram values, images are extracted from the database.

In color histogram the number of pixel of given color is calculated the color histogram extraction algorithm involves following three steps.

- Partition of color space into cells.
- Association of each cell to a histogram bin.
- Counting of number of image pixel of each cell

and storing this count in the perspective corresponding histogram bin.

Texture is a very useful characterization for a wide range of image. It is generally believed that human visual systems use texture for recognition and interpretation. This feature has been extracted by using SIFT descriptor. SIFT based analysis involves detecting salient locations in an image and extracting descriptors that are distinctive yet invariant to changes in viewpoint, illumination, etc. To extract these texture features SIFT descriptors are used. With the help of these extracted features, Images are annotated by using Hidden Markov model. The parameters of the model are estimated from a set of manually annotated images. Each image in a large test collection is then automatically annotated with the a posteriori probability of concepts present in it. After annotating images, images are semantically retrieved based on Natural Language processing tool namely WordNet[9]. Semantic Similarity based Image Retrieval Model is used for discovering similarities between Images in the database with the query image containing conceptually similar terms. These methods are implemented and evaluated using WordNet.

V.CONCLUSION

The present work proposes Semantic annotated Markovian Semantic Indexing (SMSI) a semantic image retrieval is done and its performance improved by incorporating an automatic annotation system. Automatic annotation of images in database has been done by using a proposed Hidden Markov model which uses the extracted features (color and texture) where all states represent the concepts. Semantic similarity based image retrieval can be done with the use of Natural language processing tool namely WordNet where conceptual similarity between natural language terms were done. Comparative result provides better result for proposed system rather than existing retrieval system of framework.

This paper describes various privacy policy techniques for user uploaded data and images in various content sharing sites. The privacy policy can be applied based on the user social behavior and the user uploaded image content. Table I presents the overview of various privacy policy techniques among the existing systems. Future research lead towards improving the performance by a novel semantic retrieval of images is done based on Hidden Markov model based annotated images. To annotate the images, features such as Color and texture feature are

extracted by using Color Histogram and SIFT Descriptors methods. This method will provide more efficient results.

VI. REFERENCES

1) R. Agrawal and R. Srikant,"Fast algorithms for mining association rules in large databases," in Proc. 20th Int. Conf. Very Large Data Bases, 1994, pp. 487–499.
2) S. Ahern, D. Eckles, N. S. Good, S. King, M. Naaman, and R. Nair, "Over-exposed?: Privacy patterns and considerations in online and mobile photo sharing," in Proc. Conf. Human Factors Comput. Syst., 2007, pp. 357–366.
3) M. Ames and M. Naaman, "Why we tag: Motivations for annotation in mobile and online media," in Proc. Conf. Human Factors Comput. Syst., 2007, pp. 971–980.
4) A. Besmer and H. Lipford, "Tagged photos: Concerns, perceptions, and protections," in Proc. 27th Int. Conf. Extended Abstracts Human Factors Comput. Syst., 2009, pp. 4585–4590.
5) D. G. Altman and J. M. Bland ,"Multiple significance tests: The bonferroni method," Brit. Med. J., vol. 310, no. 6973, 1995.
6) J. Bonneau, J. Anderson, and L. Church, "Privacy suites: Shared privacy for social networks," in Proc. Symp. Usable Privacy Security, 2009.
7) J. Bonneau, J. Anderson, and G. Danezis, "Prying data out of a social network," in Proc. Int. Conf. Adv. Soc. Netw. Anal. Mining., 2009, pp.249–254.
8) H.-M. Chen, M.-H. Chang, P.-C. Chang, M.-C. Tien, W. H. Hsu, and J.-L. Wu, "Sheepdog: Group and tag recommendation for flickr photos by automatic search-based learning," in Proc. 16th ACM Int. Conf. Multimedia, 2008, pp. 737–740.
9) M. D. Choudhury, H. Sundaram, Y.-R. Lin, A. John, and D. D. Seligmann, "Connecting content to community in social media via image content, user tags and user communication," in Proc. IEEE Int. Conf. Multimedia Expo, 2009, pp.1238–1241.
10) L. Church, J. Anderson, J. Bonneau, and F. Stajano, "Privacy stories: Confidence on privacy behaviors through end user programming," in Proc. 5th Symp. Usable Privacy Security, 2009.
11) R. da Silva Torres and A. Falc~ao, "Content-based image retrieval: Theory and applications," Revista de Informatica Teorica e Aplicada, vol. 2, no. 13, pp. 161–185, 2006.
12) R. Datta, D. Joshi, J. Li, and J. Wang, "Image retrieval: Ideas, influences, and trends of the new age," ACM Comput. Surv., vol. 40, no. 2, p. 5, 2008.