

Efficient Multimedia Contents Management System with Tag Recommendations

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Abstract— Recently, rapid development of internet technology, the amount of data on the web is exponentially generated. Because of that, users are difficult to find desired multimedia data. For efficient search and management of multimedia data, collaborative tagging is appropriated to describe and categorize the data. Then we proposed the collaborative multimedia management systems based on tag recommendation. Our system suggests the tag candidates for describing and categorizing the multimedia contents.

Index Terms— Folksonomy, Recommendation System, Multimedia Contents Management, Web 2.0

I. INTRODUCTION

In the era of Web 2.0, a number of users generate multimedia content on the web. Therefore, the importance of searching multimedia is emphasized.

Tag, the simple keyword explaining web contents such as URL, photo, video, is playing a role as metadata of the web contents [1]. Most of metadata in social media might only describe the explanations about the multimedia contents. Then many researchers are interested in web 2.0 or web 3.0 paradigms because of user participations recently. However the users could not still utilize various functionality of web 2.0. Furthermore many users meet difficulty to describe and categorize the user generated contents. Then we propose the collaborative tagging system for managing the multimedia contents. We could provide the tag candidates in order to reflect to users' intentions and tagging patterns.

Tag technologies in Web 2.0 can be classified into crowdsourcing and collaborative tagging. Collaborative tagging is also called Folksonomy, social tagging and so forth (on). Folksonomy is a portmanteau of the "folk + order + nomous" [2]. It means that the classification by the people. It means that tags represent and classify the interaction between a provider and a consumer of information through the Taxonomy. Folksonomy provides the ability to define and classify and search the content. Thus Folksonomy has received attention as a methodology for implementing a user participating web. Crowdsourcing is one of the ways to

involve the public in the content production. Wikipedia is an encyclopedia produced by your participation. Anyone can participate and it can be also modified and supplemented. Moreover there are many social media services should apply the crowdsourcing concept for activating user participation in the manner of contents generation and distribution.

For efficient search and management of multimedia data, collaborative tagging is appropriated to describe and categorize the data. Then we propose the collaborative multimedia management systems with tag recommendation. The proposed approach should provide the tag candidates for describing and categorizing the user generated contents.

The remainder of this paper is organized as follows. In Chapter 2 describes architecture of the proposed tag recommendation system and Chapter 3 displays the implementation and analysis for the proposed system. Finally, Chapter 6 provides some concluding remarks regarding our proposal.

II. MULTIMEDIA CONTENTS MANAGEMENT SYSTEMS WITH TAG RECOMMENDATION

In this paper, we propose the user participatory tag based multimedia recommendation systems. In addition, we perform an efficient management of multimedia information based on the generated tag information to the system. The tags in various social media services help to facilitate the

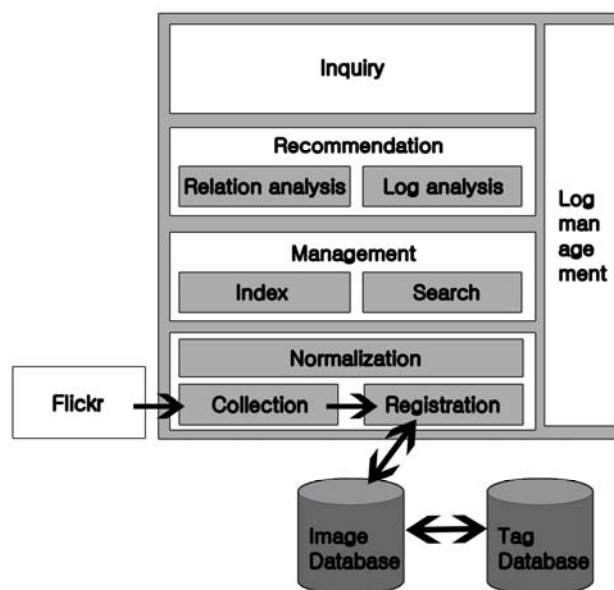


Fig. 1. Architecture of The Proposed System

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definition and classification of the multimedia content. It should represent the information contained in the content, as an individual manner. Thus the amount of good tag could improve the search efficiency. It would also realize the enhanced classification of metadata [3].

By the way, Flickr is one of the sites that provide tag-based album. It has registered more than 3.5 million images per day [2]. In [4], authors showed that 60% of the Flickr website images known to include a tag with up to three averages.

Insufficient tag poor search efficiency. It also causes difficulties of definition and classification. In order to overcome this, it is necessary to elicit active user participation. Using crowdsourcing and collaborative tagging, we propose a tag recommendation system to induce users to participate.

III. IMPLEMENTATION AND ANALYSIS

The system proposed in this paper, we implement a tag-based system that can retrieve the associated definition and classification, and image content generated by the participation of the users. This tag-based social image using the Open API provided by sharing site Flickr to collect 500

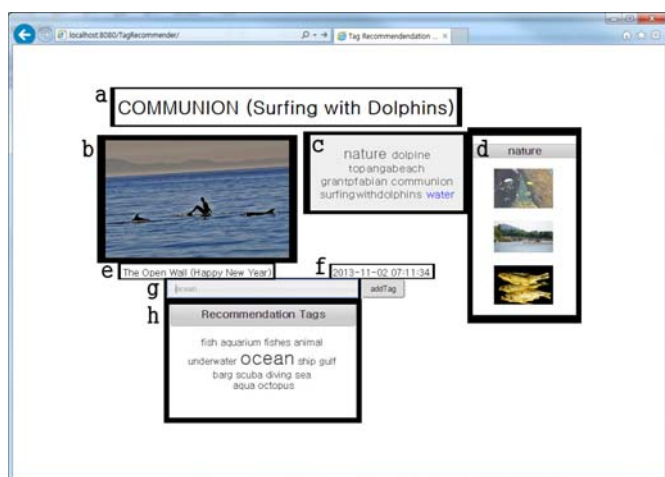


Fig. 2. Efficient Multimedia Contents Management System with Tag Recommendations

pictures including fish and its metadata information. The metadata information is classified as a sequence index, photoId, owner, title, dates, tags. This normalized and stored in Image DB. Image content information to effectively manage structured data are also managed through the Sequence Index, the Tag information is managed using the Inverted Index Structure. Tag recommendation is the most common technique used for simultaneous occurrences, one of the tags in the tag recommendation algorithm (tag co-occurrence frequency) [5]. Tag co-occurrence frequency means for measuring the number of times the value is used with the two tags [6].

For example tag A, B, C, D in Image one, tags A, C, D in Image two, and tags A, C, to Image3 is assumed. Tags based on the tag A, C > D > B in order, as the correlation is high. In this paper, We recommend a tag based on the correlation of the image tag high top 5 tags. Also Tag A is tagging Image 1, 2, 3 has a correlation. The correlation of the images is classified by the tag.

Fig. 2 shows a tag recommendation system based on this paper. Part 'a' displays the title of the image. Part 'e' and 'f' represent the owner and the upload date, respectively. Part 'b' and 'c' are the image from Flickr and their tags. Tags colored Black are marked when users upload an image. Tags colored blue are added by the recommended tags. As you see part 'd', it shows a thumbnail image of the same tag when clicking on the tag. When you add a tag, you can see the recommended tag in part 'h'. And then click a recommended tag, it might add to tag list of images.

IV. CONCLUSION

Voluntary user participation for the Web 2.0 era, we propose a tag recommendation system for induction. Tag co-occurrence frequency of the existing tag was used in the tag recommendation. This will relieve the pain and time consuming for the user's tagging. And to highlight the importance of a tag, it will enable the tagging. The users who recommended the tag is voluntary, they will be able to express their thoughts with little effort. Voluntary participation of users will soon develop into the overall opinion. This may contain wide range reliable information on the content.

Because the proposed tag recommendation system with tag co-occurrence frequency, it may lack the accuracy and reliability of the tag. To compensate for this, if we incorporate additional technologies and will be able to recommend high accuracy and reliability tags. As such, placing the emphasis on a series of tags to check the frequency of natural language processing techniques or if the tag recommendation system considering the expected effect of the disposition by the individual user dictionary information will be further increased.

In our future work, we are going to proceed with the evaluation on this for the development of the proposed system.

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