GRANULARITY-BASED INTERACTIVE IMAGE DISPLAY

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ABSTRACT

This paper presents a prototype system that assists users in accessing an unstructured image set (e.g., search results of a query). The system provides a spectrum of overviews, each of which is determined by the display granularity (i.e., the level of summary) an user desires. This new functionality enables a new granularity-based interactive image browsing experience.

Index Terms— Image retrieval, interactive browsing.

1. INTRODUCTION

People are often shown a set of unorganized images, for example, image query results from an initial search. Conventional browsers provide only paging and scrolling, but visually inspecting many pages of redundant, irrelevant, or uninteresting results can be laborious and time-consuming. This burden is exacerbated when the display panel is small, or when large quantities of retrieved images are returned by a search engine.

While the flourish of social media provides a tremendous amount of information, a considerable part of web images, however, only show a same situation with slight differences. Users are constantly presented with large quantities of repetitive content, lacking a control over the level of overview of the search results. Although existing search engines have provided methods to allow search by size, color, type and etc., the search attributes are limited to describing the images individually, rather than exploring the relationships among the retrieved images.

This paper presents a prototype system aiming to facilitate search and browsing of a set of unorganized images. It creates multiple-level summarization of varying granularity. A left to right slide bar that adjusts the granularity of how different images are deemed similar is provided along with the search results, as illustrated in Fig. 1. The left endpoint gives the initial search results in which numerous similar images (in terms of visual content, geo-location or captured time) are displayed on the screen. As the slide bar is moved right the level of abstraction is raised—only images that reveal diverse themes and subjects are shown. This new functionality enables a new granularity-based interactive image browsing experience. For example, when the user search intent is not clear, users may move the slide bar to receive a quick overview of an image collection across different granularities. Once the intention gap is narrowed, more similar images can be shown easily by sliding the bar to the left. The use of a slide bar for browsing images can both give a proper overview and enable the exploration of specific sets in further details.

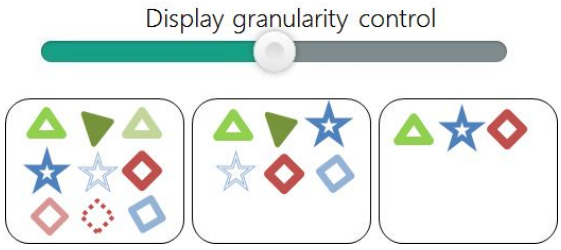

Fig. 1. Illustration of granularity-based display.

2. DEMONSTRATION SETUP

The demonstration has the form of a stand-alone web system, containing the Yahoo Flickr Creative Commons 100 Million Dataset (YFCC100M) [1]. Similar to existing image search systems, an user starts a search by giving keywords. Two slide bars are provided to control the granularity (of time and location) the user desires for browsing the retrieved results. We will demonstrate the system's ability to display images in a fun, informative and interactive manner. A short demonstration video is available at: https://youtu.be/OfJuXSwvpAA.

3. ACKNOWLEDGMENT

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4. REFERENCES

[1] B. Thomee, D. A. Shamma, G. Friedland, B. Elizalde, K. Ni, D. Poland, D. Borth, and L. J. Li, "Yfcc100m: The new data in multimedia research," *Communications of the ACM*, vol. 59, no. 2, pp. 64–73, 2016.