ETSWM006- 2017 Image Re-Ranking Based on Topic Diversity

Abstract

Social media sharing Websites allow users to annotate images with free tags, which significantly contribute to the development of the web image retrieval. Tag-based image search is an important method to find images shared by users in social networks. However, how to make the top ranked result relevant and with diversity is challenging. In this paper, we propose a topic diverse ranking approach for tag-based image retrieval with the consideration of promoting the topic coverage performance. First, we construct a tag graph based on the similarity between each tag. Then, the community detection method is conducted to mine the topic community of each tag. After that, inter-community and intra-community ranking are introduced to obtain the final retrieved results. In the inter-community ranking process, an adaptive random walk model is employed to rank the community based on the multi-information of each topic community. Besides, we build an inverted index structure for images to accelerate the searching process. Experimental results on Flickr data set and NUS-Wide data sets show the effectiveness of the proposed approach.