

Extracting and Understanding Urban Areas of Interest

Using Geotagged Photos

Abstract: Urban areas of interest (AOI) refer to the sub-regions within an urban environment that attract people's attentions. Such areas often have high exposure to the general public, and receive a large number of visits. As a result, urban AOI can reveal useful information for city planners, transportation analysts, and location-based service providers to plan new business, extend existing infrastructure, and so forth. Urban AOI exist in people's perceptions and are defined by their behaviors. Social media data record the interactions of users with their surrounding environment, and therefore have the potential to uncover interesting urban area. This paper presents a methodology framework to extracting and understanding urban AOI using Flickr data. Six different cities from six different countries have been selected for this study, and Flickr data covering these cities in the past ten years (2004 - 2014) have been retrieved. We identify AOI using DBSCAN clustering method, understand AOI by extracting distinctive tags and preferable photos, and discuss the potential insights derived from the AOI. An online prototype has also been implemented as a proof-of-concept. While Flickr data have been used in this study, the proposed method can also be applied to other geotagged photo data.

Keywords: areas of interest; AOI; social media; Flickr; DBSCAN; chi-shape; tag extraction; photo analysis;

Contact:

Yingjie Hu

Email: yingjiehu@umail.ucsb.edu