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PERSONALIZED TRAVEL FEEDBACK RECOMMENDATION ON SEVERAL-SOURCE BIG DATA AND SOCIAL MEDIA

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ABSTRACT

Big data increasingly gain both research and industrial area such as health care, finance service and commercial recommendation. This thesis presents a complete travel sequence recommendation from both travelogues and community-devote photos and the heterogeneous metadata (e.g., tags, geo-location, and date taken) associated with these photos. Distant most existing travel recommendation access, our approach is not only personalized to user's travel interest but also able to recommend a travel sequence rather than individual Points of Interest (POIs). Topical package space including representative tags, the distributions of cost, visiting time and visiting season of each topic, is mined to bridge the vocabulary gap between user travel preference and travel routes. We take advantage of the complementary of two kinds of social media: travelogue and community-contributed photos. We map both user's and routes' textual descriptions to the topical package space to get user topical package model and route topical package model (i.e., topical interest, cost, time and season). To recommend personalized POI sequence, first, famous routes are ranked according to the similarity between user package and route package. Then top ranked routes are further optimized by social similar users' travel records. Representative images with viewpoint and seasonal diversity of POIs are shown to offer a more comprehensive impression. We evaluate our recommendation system on a collection of 7 million Flickr images uploaded by 7,387 users and 24,008 travelogues covering 864 travel POIs in 9 famous cities, and show its effectiveness. We also contribute a new dataset with more than 200K photos with heterogeneous metadata in 9 famous cities.

Keywords: POI, Geo location, Famous cities.

1. INTRODUCTION

Big data is a term for data sets that are so large or complex that traditional data processing applications are inadequate to deal with them. Challenges include analysis, capture, data duration, search, sharing, storage, transfer, visualization, querying, updating and information privacy. The term "big data" often refers simply to the use of predictive analytics, user behavior analytics, or certain other advanced data analytics methods that extract value from data, and seldom to a particular size of data set. "There is little doubt that the quantities of data now available are indeed large, but that's not the most relevant characteristic of this new data ecosystem. Analysis of data sets can find new correlations to "spot business trends, prevent diseases, and combat crime and so on". Scientists, business executives, practitioners of medicine, advertising and governments alike regularly meet difficulties with large data-sets in areas including Internet search, finance, urban informatics, and business informatics. Scientists

encounter limitations in Science work, including meteorology, genomics,connectomics, complex physics simulations, biology and environmental research.

2. RELATED WORK

In this section, we mainly introduce three aspects of related works travel recommendation on various big social me- dia; personalized travel recommendation) travel se- quence and travel package recommendation. We also point out the differences between our work and existing works. GPS trajectory check-in data geo-tags and blogs (travelogues) are four main social media used in recommendation. User-generated travelogues provide rich information. Kurashima et al. extracted typical user's travel sequences according to entries, associated with multimedia information of the routes besides travelogues, GPS and geo-tags are also widely utilized in travel recommendation. Zheng et al. conducted a series of works of travel routes mining and recommendation using GPS trajectory, and achieved promising results However, comparing to the rich travelogues and geo-tags data on social media, GPS trajectory data are relatively difficult to obtain. Geo-tagged photos based automatic travel route planning works have attracted lot attentionsrecently; multi-source big social media have shown their robustness . Liu et al. discovered Areas of Interest by analyzing geo-tagged image and check-ins data simultaneously

3. EXISTING SYSTEM

Existing studies on travel recommendation mining famous travel POIs and routes are mainly from four kinds of big social media, GPS trajectory check-in data geo-tags and blogs (travelogues).However, general travel route planning cannot well meet users' personal requirements. Personalized travel recommendation recommends the POIs and routes by mining user's travel records. The most famous method is location-based collaborative filtering (LCF). To LCF, similar social users are measured based on the location co-occurrence of previously visited POIs. Then POIs are ranked based on similar users' visiting records. However, existing studies haven't well solved the two challenges. We analyze that the park distribution (i) raises the ranking of route 3 and the museum (d) and sightseeing (f,g) distributions raise the ranking of route 4. We offer the optimized route 3 and route 4 as example. In route 3, the system optimizes the route by adding the "Vinopolis", which is a London commercial wine attraction and it is on the way, In route 4 optimization, the system adds London Eye which meets user's travel preference and also on the way. The landmark names are shown as follows: a) Trafalgar Square, b) National Gallery, c) Buckingham Palace, d) British Museum, e) Westminster Abbey, f) Palace of Westminster, g) Tower of London, h) Tower Bridge, i) Hyde Park, j) Oxford street, k) Globe Theatre, l) St Paul's Cathedral, m) London Eye, n) Big Ben. Mendation works only focused on user topical interest mining but without considering other attributes like consumption capability. For the second challenge, existing studies focused more on famous route mining but without automatically mining user travel interest. It still remains a challenge for most existing works to provide both "personalized" and "sequential" travel package recommendation.

DISADVANTAGE

- These data are not only useful for reliable POIs (points of interest) Ming , travel routes Ming, but give an opportunity to recommend personalized travel POIs and routes based on user's interest .
- It may still not be a good recommendation if all the POIs recommended for one day are in four corners of the city, even though the user may be interested in all the individual POIs.

4. PROPOSED SYSTEM

Our work is a personalized travel recommendation rather than a general recommendation. We automatically mine user's travel interest from user-contributed photo collections including consumption capability, preferred time and season which is important to route planning and difficult to get directly. I recommend personalized POI sequence rather than individual travel POIs. Famous routes are ranked according to the similarity between user package and route package, and top ranked famous routes are further optimized according to social similar users' travel records. I propose Topical Package Model (TPM) method to learn users and route's travel attributes. It bridges the gap of user interest and routes attributes. We take advantage of the complementary of two big social media to construct topical package space.

ADVANTAGE

- The system automatically mined user's and routes' travel topical preferences including the topical interest, cost, time and season,
- We recommended not only POIs but also travel sequence, considering both the popularity and user's travel preferences at the same time.
- We take advantage of the complementary of two big social media to construct topical package space.

5. SYSTEM MODULE

The implementation stage involves careful planning, investigation of the existing system and it'sconstraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

TRAVELOGUE

Travelogue websites (e.g., www.igougo.com) offer rich descriptions about landmarks and traveling experience written by users. Furthermore, community-contributed photos with metadata (e.g., tags, date taken, latitude etc.) on social media record users' daily life and travel experience. These data are not only useful for reliable POIs (points of interest) Ming, travel routes Ming, but give an opportunity to recommend personalized travel POIs and routes based on user's interest.

COMMUNITY

We propose a Topical Package Model (TPM) learning method to automatically mine user travel interest from two social media, community-contributed photos and travelogues. We observe that in community-contributed photo sometimes the "date taken" of night scene is daytime. But the time descriptions of POIs of travelogues do not have time difference problem. In offline module, what's more, we mine POIs and famous routes from community contributed photos, and obtain routes' packages through mapping travelogues, which are related to these routes, to the topical package space.

CONCLUTION

In this paper, we proposed a personalized travel sequence recommendation system by learning topical package model from big multi-source social media: travelogues and community-contributed photos. The advantages of our work are 1) the system automatically mined user's and routes' travel topical preferences including the topical interest, cost, time and season, 2) we recommended not only POIs but also travel sequence, considering both the popularity and user's travel preferences at the same time. We mined and ranked famous routes based on the similarity between user package and route package. And then optimized the top ranked famous routes according to social similar users' travel records. However, there are still some limitations of the current system. Firstly, the visiting time of POI mainly presented the open time through travelogues, and it was hard to get more precise distributions of visiting time only through travelogues. Secondly, the current system only focused on POI sequence recommendation and did not include transportation and hotel information, which may further provide convenience for travel planning. In the future, we plan to enlarge the dataset, and thus we could do the recommendation for some non-famous cities. We plan to utilize more kinds of social media (e.g., check-in data, transportation data, weather forecast etc.) to provide more precise distributions of visiting time of POIs and the context aware recommendation.

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