소셜 라이프 로그를 이용한 개인화된 여행 경로 추천
Personalized Travel Path Recommendations with Social Life Log

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ABSTRACT

The travellers using social media leave their location history in the form of trajectories. These trajectories can be bridged for acquiring information, required for future recommendation for the future travelers, who are new to that location, providing all sort of information. In this paper, we propose a personalized travel path recommendation scheme based on social life log. By taking advantage of two kinds of social media such as travelogue and community contributed photos, the proposed scheme can not only be personalized to user's travel interest but also be able to recommend a travel path rather than individual Points of Interest (POIs). It also maps 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).

I. Introduction

The travellers using social media during their travel leave their location history in the form of trajectories. These trajectories bridge the gap of information between the travelers and locations. To recommend the personalized POI path, first famous routes surrounding the landmark areas are ranked, if they are similar to the user preference and route package. Whenever tourists visit a new place, there is always a necessity regarding how the sightseeing can be efficient and what the best local dish with budget compliance yet tasty depending on every season is. In India, the tourism is very much dependent on season due to mixture of tropical and alpine climate in one nation. Therefore, how can a tourist who is new to an Indian city travel without having any problem? Nowadays, social media like Instagram, QQ, Facebook, Flick,

Zomato, and MySpace offer great opportunities to address many challenging problems, like GPS estimation, and travel recommendation. Moreover, the photos contributed from the communities with metadata (e.g. latitude, date taken etc.) on social media record user's daily and travel experiences. These data are not only useful for reliable POIs (points of interest) travel routes but they also provide an opportunity to recommend personalized travel POIs and routes based on user's interest.
However the challenges are:

1) Personalization of User's Interest: It is important as different users have different travel itineraries depending on their preferences. Some tourists would love to visit the whole day or night sight-seeing during famous Autumn Festival in Kolkata, India. But, some people would just like to experience calming River Cruises on the Ganges river and visiting famous monuments, built at the time, when it was the former capital of India

2) Budget and Time Constraint: As tourists might find it difficult to travel if the POI falls in different parts of city and each of them is far apart from each other. Thus the travel will not only become time consuming even though the user may be interested in all the individual POIs but it can be little strenuous. Personalized travel recommendation is always a good recommendation. We would like to mine user's travel

interests from user contribution from websites like Zomato, Foursquare as per the preferred time and season. In this paper we also provide information for a better travel route. Famous routes are ranked according to the similarity between user and package route. And further it is optimized according to similar user's travel records. The traffic blockage and traffic jam has always been a key issue for travellers to travel second world nations like India. Therefore, the traffic police data can also be added along with the weather information of which attraction are closed or opened depending on the user's visiting period. The possible road blockages during peak Indian tourism season or the nearby attraction during the Autumn Festivals, which the traffic police website can provide the information, for example in Kolkata (the second largest city of India), the Kolkata Traffic police would provide the information in their website. The tourism surrounding the festive season always changes every year as per traditional Indian Solar calendar.

Ⅱ. The Proposed Travel Path Recommendation

Figure 1, shows the whole process of the proposed system. The personalized POI path recommendation system can generate information by mining topical interest. The system can be enabled for the users to input personal preference in an interactive manner. Recently, travel package recommendation contains more attributes (e.g., time, cost, season), which have shown more effective performance than works which only considered topical interest.
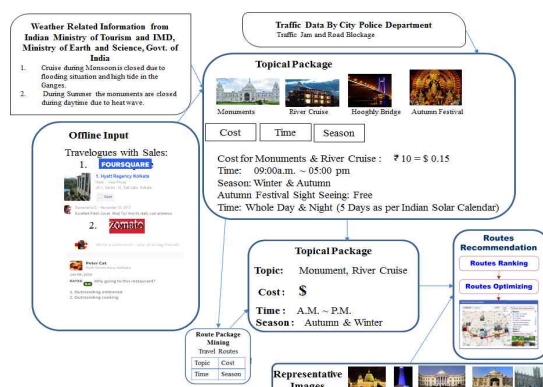

Figure 1. The whole process of the proposed system

Topic package space is a kind of space in which the four travel distributions of each topic can be described as follows:

(1) Representative Tags mined from travelogues which describe POIs within the same topic.
(2) The Average Consumer Expenditure of the POIs within this topic, can be mined from the travelogues.
(3) Distribution of the Visiting Season within a year can be mined by the "date taken" attached with the community-contributed photos;
(4) Distribution of Visiting Time can also be mined from travelogues, for opening and closing time. Personalized travel path recommendation is more convenient for users than the individual POIs recommendation.

As shown in Figure 1, the offline module aims at preparing topical package space and mining POI and famous routes and their topical package models. It consists of the following two parts such as social media mining and topical package space construction, and routes package mining. The routes recommendation system contains two steps such as routes ranking and routes optimizing.

Then top ranked routes are further optimized by social similar users' travel records. Route topical package model (route package) is learnt from mapping the travelogues related to the POIs on the route to the topical package space. The usage of the topic package space is to bridge the gap between user interest and the attribute of routes, since it is difficult to measure directly, regarding the similarity between user and travel path. From mapping both user information and route information to the same space, the quantitative standard can be obtained to measure the similarity of user and routes. The top rated locations and travel paths are mined in a given region from a large number of user's GPS trajectories and it is possible to predict a user's interests in an unvisited location by involving the GPS trajectories of the user and that of others.

■ References ■

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