



## Recommending Travel Sequence On Multi-Source Big Social Media

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**Abstract:** *Now a day, traveling recommendation is important for user who is the plan for traveling. There are many existing techniques which are used for travel recommendation. In this paper explain a personalized travel sequence recommendation system using travelogues and users contributed photos with metadata of this photo by comparing existing different technique. It recommends personalized users travel interest and recommend a sequence of travel interest instead of an individual point of interest. The existing system cannot complete the requirement i.e. personalized and sequential recommendation together. To solve the problem of providing personalized and sequential travel package recommendation, a topical package model is created using social media data in which automatically mine user travel interest with another attribute like time, cost, and season of traveling. The proposed system uses the travelogues and photos of social media which map each user and routes description to the topical package area to induce user topical package model and route*

*topical package model. To suggest personalized POI sequence, first famous routes are stratified as per the similarity between user package and route package. Then high stratified routes are more optimized by using social similar users travel records for more accuracy.*

### I. INTRODUCTION

In day to day life, people are interested in traveling and searching for the different tourist location for travel planning in which they are interested. Social media has come out continuous needs for automatic travel recommendation. This becomes an important problem in research and industry. Social media offers great opportunities to address many challenging problems, like GPS estimation and travel recommendation. Travelogue websites offer rich descriptions about landmarks and traveling experience written by users. These data are not only useful for reliable POIs i.e. points of interest, travel routes but give an opportunity to recommend personalized travel POIs and routes based on user's interest.

Existing studies on travel recommendation use the different types of social media data, GPS trajectory, check-in-data, geo tag and blogs which are used for mining famous travel POIS and routes [2][4]. The existing system for general travel route planning cannot well meet user's personal requirements. Personalized recommendation of travel system recommends the POIs and routes by mining user's travel history. Location-based collaborative filtering is the most famous method for the recommendation. In this collaborative filtering method, social similar users are mapped based on the location co-occurrence of previously visited POIs. And then POIs are ranked according similar users travel history. There are two problems in automatic travel recommendation when we compare existing travel recommendation approach. First, the recommended POIs should be personalized to user interest since different users may prefer different types of POIs. Second, it is important to recommend a sequential travel route that is a sequence of POIs rather than individual POI. Existing system on travel recommendation has not well solved the two problems. The first problem, most of the travel recommendation works only focused on user topical interest mining without considering other attributes like consumption capability of the user. And for the second problem, existing studies focused more on famous route mining but not

considering user travel interest [1]. To solve the challenges sequential and personalized recommendation of travel location for the user, the new system proposes Topical Package Model method which automatically mines user travel interest from two types of social media data, different user-contributed photos and travelogues. For the first problem, it considers user's topical interest with the attribute like consumption capability and preference of visiting time of user and season. It is difficult to measure the similarity directly between user and route, proposed system build a topical package model and then map both user's and route's textual descriptions to the topical package model to get user topical package model (user package) and route package model (route package) using topical package space[1]. Comparing with existing recommendation system for traveling with this recommendation system is more suited for travel planning for users.

## II. LITERATURE SURVEY

For travel recommendation system different system uses different types of data to mine user interested POIs, for this mining mainly four kinds of social media data are used that is GPS trajectory, check-in-data, geo tag and blogs for recommendation. User generated travel log provide rich information for a recommendation system. Liu et al. discovered

Areas of Interest by examining geo tagged photos and check-ins data simultaneously. In this approach, by combining geo-tagged images and check-ins for the same city, for Area of Interest discovery and ranking those interest, to discover areas in a city in which popular attractive locations and popular locations are located for the travelers. A modified density-based clustering method is used in this approach which devised to identify an area of interest and proposes a novel joint authority analysis framework to the rank area of interest. The proposed framework in this approach simultaneously considers both the location-location transitions, and the user-location relations [5]. S. Jiang, presents an Author topic model-based collaborative filtering method for personalized travel recommendations. Using author topic model user's topic preference can be mined from the textual descriptions attached with user's photos. Through author-topic model, travel topics, and a user's topic preference can be elicited simultaneously. In this recommendation system, POIs are ranked according to similar users, who share similar travel topic preferences. This method overcomes the problem in location-based collaborative filtering, without GPS records, in author-topic model based collaborative filtering method mine similar users accurately according to the similarity of users' topic

preferences [2]. J. Sang, explain the potential of location-based service to overcome with an advanced recommendation problem activity plan, which is to suggest a package of sequential activities related to user context and interest. This type of recommendation system of point of interest is a probabilistic approach in which recommended POIs are relevant to user context i.e. current location, time, and check-in and personalized check-in history of the user. This approach of recommendation is highly motivated from a large-scale commercial mobile check-in data analysis, to rank a list of sequential POI categories and different POIs. The approach enables users to plan continuous activities going from one place to another [3]. H. Huang describes collaborative filtering to mine GPS trajectories for providing POI recommendations. Three Collaborative Filtering methods are designed: simple CF, frequencies CF which considering visit frequencies of POIs, and frequencies sequence collaborative filtering. This method considers both users' preferences for POI and spatio-temporal behavior. Comparing simple location based methods with the collaborative filtering methods, collaborative filtering provides more accurate predictions. It also considers visit frequencies, the popularity of POIs and spatio temporal motion behavior in that which POIs are visited in collaborative filtering can improve the predictive

performance [4]. Ge et al. develop a cost aware route recommendation module in which two cost aware latent factor models are developed to recommend travel packages by considering both the travel cost and the tourist's interests and analyze the cost and stay days relation[7]. Q. Yuan studies travel package recommendation which focuses on more Attribute like time, the season of travel. In this travel recommendation the problem of time-aware POI recommendation, this recommends a list of POIs for a user to visit at a given time. To use both geographical and temporal influences in time-aware POI recommendation, proposes the Geographical-Temporal influences Aware Graph to model check-in records, geographical effect and temporal impact [8]. The proposed system recommends personalized travel sequence using social media data. For this recommendation system first mines POI and topical model from photos and travelogue and then route mined according travel history. It mine and rank famous routes based on the similarity between user package module and route package module. For accuracy then the top ranked famous routes optimized according to social similar users travel history for personalized travel sequence recommendation [1]. Xueming Qian explains personalized recommendation which considers two factors, user personal information and users' social

group [13]. Subramaniya Swamy described a system which helps to user in finding tourist locations that users want to visit. A place is mined from available user contributed photos of that place available on photo sharing websites. [15]. Q. Liu presents personalized travel recommendation exploiting online travel information. In this method analyzed the unique characteristics of travel packages and create the Tourist Area Season Topic model, a Bayesian network for travel package and tourist representation [11]. Luepol Pipanmekaporn proposed a novel user-based collaborative POI recommendation algorithm for location-based social networks [16]. This method focuses on inferring user's check-in behaviors from user's location history to make a high-quality recommendation of POIs to a user based on the current location and opinions of similar users [15]. Table 1 shows different techniques for travel recommendation.

### III.EXISTING SYSTEM

The existing system for travel recommendation uses different techniques for travel recommendation but did not consider popularity and personalization of travel route at the same time. Collaborative filtering is the most popular method for the recommendation. Location based collaborative filtering method for recommendation method considers only popular route location for recommendation [2].

The point of interest mining for recommendation is done in the existing system without considering users attribute like time, cost, season which is not mined automatically. For travel recommendation in existing system data mined from different kinds of data contained on social media website for traveling, GPS trajectory, check-in data, geo tags, and the travelogues of different user [6]. However, general travel route planning cannot complete users' personal requirements. Personalized travel recommendation recommends the POIs and routes by mining user's travel records. In a location-based collaborative method, 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 [16]. However, existing studies for travel recommendation haven't well solved the two problems, personalized and sequential travel recommendation of user preference. For the first problem, most of the travel recommendation works only focused on user topical interest mining but not consider other attributes like consumption capability of different users. For the second problem existing studies focused more on famous route mining but not automatically mining user travel interest. It still remains difficult for existing travel recommendation system to provide personalized and sequential travel

recommendation. The existing system cannot give personalized recommendation to the user with the sequence of POI. Disadvantages of Existing System: The existing studies related to travel sequence recommendation did not well consider the popularity and personalization of travel routes at the same time. The multi-attributes of users and routes e.g., consumption capability, preferred season, etc. have not been mined automatically.

#### **IV. PROPOSED SCHEME**

This paper presents a personalized travel sequence recommendation from both travelogues and community contributed photos and the heterogeneous metadata (e.g., tags, geo-location, and date taken) associated with these photos. 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.

## V. CONCLUSION AND FUTURE WORK

This paper explains a recommendation system for personalized travel sequence in which recommendation is based on two types of social media data, travelogues written by users and users contributed photos on social media. This recommendation system considers the user interest with another attribute of users like time, season, and cost of travel. Using this social media data not only mines users' point of interest but also the travel sequence of the point of interest with considering other attributes of user i.e. consumption capability of the user. For future work, we can use more types of data for mining user interest and can provide information for a recommendation like hotel information and transportation detail for the user for convenience tour planning.

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