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Survey: Optimal Travel Route Discovery based on Topic Interest and Image Attributes

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ABSTRACT

With the popularity of social media such as Facebook and Flicker, users can easily share their registration records and photos during their travels. When planning a trip, users always have a particular preference for their trip. The system does not restrict users to limited query options (such as location, activity, or time period), but rather treats any text description as a keyword for personalized needs. Previous work has elaborated on excavating and arranging existing routes from check-in data. In order to meet the needs of the auto travel organization, the system claims that more POIs should be extracted. Therefore, this paper proposes an efficient keyword-based representative travel route framework that uses knowledge from historical flow records and social interactions of users. Explicitly, the system designs a keyword extraction module to classify POI-related tags so as to effectively match the query keywords. The system further designed a route reconstruction algorithm to build route candidates that meet the requirements. In order to provide appropriate search results, explore the representative Skyline concept, the Skyline route, which best describes the tradeoffs between different POI features. In order to evaluate the effectiveness and efficiency of the proposed algorithm, extensive experiments were conducted on location-based real social network datasets. However, it does not consider the cost of travel routes. So use the minimum spanning tree to calculate cost-effective travel routes.

Keywords: *Location-based social network, text mining, travel route recommendation*

I. INTRODUCTION

In view of the large number of users' history mobile records in social media, the system aims to discover the travel experience to promote travel plans. When planning a trip, users always have a particular preference for their trip. The system does not restrict users to limited query options (such as location, activity, or time period), but rather treats any textual description as a keyword for personalized needs. In addition, a diverse and representative recommended travel route is also needed. Previous work has elaborated on excavating and arranging existing routes from check-in data.

For many years, the recommendation system has been extensively studied and divided into different categories depending on the method used. These categories are collaborative filtering (CF), content-based and context-based hybrid filtering.
In order to meet the needs of the auto travel organization, the system claims that more POIs should be extracted. Therefore, this paper proposes an efficient keyword-based representative travel route framework that uses knowledge from historical flow records and social interactions of users. Explicitly, the system designs a keyword extraction module to classify POI-related tags so as to effectively match the query keywords.

The system further designs a route reconstruction algorithm to build a route candidate that meets the requirements. To provide appropriate search results, explore the representative skyline concept here, the Skyline route, which best describes the tradeoffs

between different POI features. In order to evaluate the effectiveness and efficiency of the proposed algorithm, extensive experiments were conducted on location-based real social network datasets.

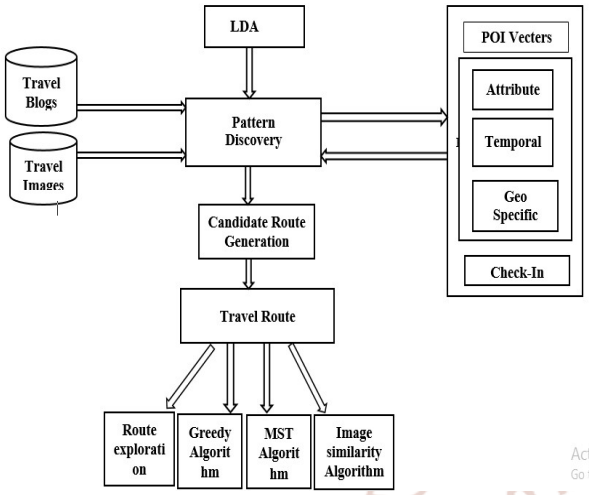

Figure 1: Optimal Travel Route Framework

II. RELATED WORK

Given the large amount of registration data and photos in social media, it intends to discover the travel experience to promote travel plans. Previous work has elaborated on mining and arranging existing travel routes from check-in data. The system observes that when planning a trip, the user may have some keywords about his/her travel about his/her preferences. In addition, a variety of travel routes are also needed. In order to provide a variety of tourist routes, the system claims to extract features of more attractions (POIs). Here is a keyword-aware Skyline Travel Path (KSTR) framework that uses knowledge extracted from historical mobile records and users' social interactions. Explicitly, the system simulates the "where, when, and who" issues by characterizing the geographical movement patterns, time effects, and social impacts. The KSTR consists of two modules: an offline pattern discovery and scoring module and an online travel route discovery module [2].

A travel route recommendation framework based on large geotagging and timestamped photo collections owned by photo sharing sites. The system assumes that the geotagged photos represent personal travel route histories, and classify the locations indicated by the photos based on their time stamps. In order to learn these personal histories, a new technique was proposed to construct a probabilistic photographer behavior model to estimate the probability of a photographer visiting a landmark. Based on insights into the photographer's behavior, the photographer's behavioral model combines two models: one is a topic model that is used to estimate the user's own personal preferences, and the other is a Markov model that can find typical photographer routes. [3].

The traditional travel recommendation system can be considered as one of the information recommendation systems. Usually, the shortest path of time or distance can be calculated. Recently, travel recommendation systems for more general purposes have become an important research topic. This paper proposes an efficient travel route search system. This system not only recommends simple routes to connect multiple tourist attractions, but also recommends scenic roads. The system focuses on the visibility of scenic spots between one tourist attraction and another tourist attraction. This is an important factor in selecting a driving route, but it has not been considered in the traditional tourism recommendation system. An advanced travel recommendation system is proposed here, which involves extracting famous attractions from the network and conducting route search based on the visibility of the scenery on the route [4].

Multi-user GPS trajectory, the system aims to mine interesting locations and classic travel sequences in a given geospatial area. Interesting places here mean culturally important places such as Tiananmen Square in Beijing and frequented public places such as shopping malls and restaurants. This information can help users understand the surrounding locations and can make travel recommendations. In this work, we first used a tree-based layered map (TBHG) to model the location history of multiple people. Second, based on TBHG, it proposes a reasoning model based on HITS (topic search based on hypertext guidance), which treats an individual's visit at a certain location as a directed link from the user to the location [5].

Collaborative filtering (CF) is the best known method. However, existing methods often have various weaknesses. For example, sparsity may significantly reduce the performance of traditional CF. A model-based collaborative filtering (ATCF) method was proposed to promote social user POI recommendations. In the proposed method, the user-preferred themes (such as cultures, urban landscapes or landmarks) are extracted from the geotag-constrained photo text descriptions by the author topic model instead of only from the geotag (GPS location). The advantages and superior performance of the

proposed method are demonstrated by a large number of experiments on large data collection [6].

The registration website provides us with a unique opportunity to analyze people's preferences in daily life to supplement the knowledge that has been tapped from geo-tagged images. This paper proposes a new method to discover the area of interest (AoI). By analyzing geotag images and check-ins, this method uses the preferences of travelers and the preferences of local residents for daily activities to find AoI in the city. The proposed method includes two main steps. First, a density-based clustering method was designed to discover AoI, mainly based on the image density, and also reinforced by secondary densities from adjacent sites of the image. Then put forward a new joint authority analysis framework to rank AoI. The framework also considers location-position conversion and user-location relationships. It also introduces the interactive demonstration interface for visualizing AoI. This method was tested using a very large data set in Shanghai. To help travel find a fun urban area and help him/her discover magnificent views and enjoy the local experience of the area, this is a typical application case [7].

The system can help the user to find photos of the place provided on the photo sharing website that he/she may like to provide from the available user's visit to a place of travel. This article describes ways to mine demographic information and provide users with travel advice. This paper also describes an algorithm adaboost to classify data and Bayesian learning model for predicting the user's desired position based on his/her preferences. This is a probabilistic travel recommendation model that uses user-supplied photo tags to automatically mine knowledge, character attributes detected in photo content, travel group types, and travel group seasons [8].

A novel time-aware route planning (TRP). The goal is to find a time-conscious route based on a user query, including the start position, start time, and/or destination location. A time-aware route is a series of locations where each location is associated with an access time tag, which should be the most appropriate time to access the location. All locations accessed at a specific time on the desired route should be appropriate or satisfied by the user. In order to implement the proposed time-conscious route planning, the system developed a three-phase route planning framework to handle various challenges and tasks regarding time-conscious routes. The first stage aims to deduce the access time tag of the location in the route. The second stage is mining the popular time-aware transitional model, which can be regarded as a representative route segment generated by the user. The third stage is based on the route required by the query. The system elaborates the challenges, goals and ideas of the solutions proposed in the following stages [9].

Photo sharing is one of the most popular Web services. Photo sharing sites provide the ability to tag and geotag photos to make photo organization easier. Taking into account that people take pictures to record what attracts them, geotagged photos are a rich source of data that can reflect people's place-related memorable events. In this article, we focus on geotagged photos and propose a way to detect people's frequent travel patterns, that is, the typical sequence and dwell time of visited cities and descriptive labels that characterize travel patterns. The proposed method first classifies photo collections into trips and classifies them according to their travel theme, such as visiting landmarks or communicating with nature. The proposed method taps frequent travel patterns for each travel topic category [10].

There are two main challenges to automatic travel recommendations. First of all, the proposed POI should be personalized according to the interests of the user, because different users may prefer different types of POI. Second, it is important to recommend a continuous travel route instead of a separate POI. It is more difficult and time consuming for a user to plan a travel sequence than a personal interest point. In response to these challenges, the system proposes a TPM learning method that can automatically tap user travel interests from two social media, community contributed photos and travel photos. In order to solve the first challenge, the system not only considers the user's hot interest, but also considers the spending power and preference of visiting time and season. Since it is difficult to directly measure the similarity between the user and the route, the system creates a special package space and maps the text description of the user and the route to the special package space to obtain the user package model (user package) and the route package. The model (route package) is in the partial encapsulation space [11].

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large number of historical mobile records in social media, the system aims to discover the travel experience to promote travel plans. When planning a trip, users always have a particular preference for their trip. The system does not restrict users to limited query options (such as location, activity, or time period), but rather treats any text description as a keyword for personalized needs. In addition, a diverse and representative recommended travel route is also needed. Previous work has elaborated on excavating and arranging existing routes from check-in data. In order to meet the needs of the auto travel organization, the system claims that more POIs should be extracted. Therefore, this paper proposes an efficient keyword-based representative travel route framework that uses knowledge from historical flow records and social interactions of users. Explicitly, the system designs a keyword extraction module to classify the POI-related tags in order to effectively match the query keywords [1].

CONCLUSION

With the popularity of social media such as Facebook and Flicker, users can easily share their registration records and photos during their travels. Given the large number of historical mobile records in social media, the system aims to discover the travel experience to promote travel plans. When planning a trip, users always have a particular preference for their trip. The system does not restrict users to limited query options (such as location, activity, or time period), but rather treats any text description as a keyword for personalized needs. In addition, a diverse and representative recommended travel route is also needed. Previous work has elaborated on excavating and arranging existing routes from check-in data. In order to meet the needs of the auto travel organization, the system claims that more POIs should be extracted. Therefore, this paper proposes an efficient keyword-based representative travel route framework that uses knowledge from historical flow records and social interactions of users. Explicitly, the system designs a keyword extraction module to classify POI-related tags so as to effectively match the query keywords.

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