

Person Concerned Theme Recommendation System

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1. Introduce

People unconsciously experience a shift from physical social network to virtual social network. Although these social network systems brought great joy to users in online virtual social communities, few of them can merge virtual social communities and realistic social life perfectly. So in the reverse side of powerful virtual social networks, people are missing a great deal of opportunities to attend significant social events or establish new interpersonal relationships in their real social life. So this paper proposed an Person Concerned Theme Recommendation System.

2. Overall System

Social activities should be registered in advanced and one registered activities called a Theme in this system. From the views of users, the mobile devices at hand can automatically detect nearby Themes according their location, and pick out the most possible desirable Themes for users to attend according to current contextual information and learning results of users' preferences. After choosing one to attend, users can have diverse interactions with others who are attending the same Theme.

Concretely, mobile devices firstly get current surrounding accessible SSIDs of APs and then server matches them with the coverage of Themes and then infers the desired Themes as users' preferences, which is achieved by context awareness[1]. There are 8 major kinds of contextual information are involved, which can be divided into two main groups: personal information and social information. Personal information is the information of individual peripheral environment, options, schemes, and fondness about social activities, which contains the information of distances between users and Themes(*Dis*), users' calendar schedules(*Sch*), personal information on business card on mobile devices(*Car*), and histories of Joined Themes(*His*), Essentially, people are living in social environment, so people are frequently affected by others, which is called social influence [2]. So this system takes it into consideration and adds social information, which especially includes

the recommendation from friends(*Rec*), souvenirs offered(*Sou*), celebrity charm(*Cel*) and degree of satisfaction of Themes(*Sat*). Then system quantifies these 8 items of contextual information respectively, and calculates the probability of each Theme selected by user under a certain kind of contextual information, which are respectively represented by $P(Dis)$, $P(Sch)$, $P(Car)$, $P(His)$, $P(Rec)$, $P(Sou)$, $P(Cel)$, $P(Sat)$.

3. Weighted Contextual Information

Because of every person is unique, the uniform quantization are hardly satisfied everyone perfectly. So this Person Concerned Theme Recommendation System applies a weighted quantization method, which adds different weight values to different contextual information as different users' preferences. These weight values are achieved by mobile machine learning. So these weight values vary from person to person. Following equation presents the calculation process of possibility that Theme i (P_i) will be selected by user.

$$P_i = \sum P_i(v) * W_v$$

$$v \in \{Dis, Sch, Car, His, Rec, Sou, Cel, Sat\}$$

Then system picks n Themes with the maximum n possibilities to user.

4. Summary

This paper presents a Person Concerned Theme Recommendation System to help users take an active part in realistic social activities.

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Reference

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