Users Intention Serialization Analysis Based on Classic Generalized Sequential Pattern

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ABSTRACT

The past decade has witnessed the emergence and progress of multimedia social networks (MSNs), which have explosively and tremendously increased to penetrate every corner of our lives, leisure and work. Moreover, mobile Internet and mobile terminals enable users to access to MSNs at anytime, anywhere, on behalf of any identity, including role and group. Therefore, the interaction behaviors between users and MSNs are becoming more comprehensive and complicated. This paper primarily extended and enriched the situation analytics framework for the specific social domain, named as *SocialSitu*, and further proposed a novel algorithm for users' intention serialization analysis based on classic Generalized Sequential Pattern (GSP). We leveraged the huge volume of user behaviors records to explore the frequent sequence mode that is necessary to predict user intention. Our experiment selected two general kinds of intentions: playing and sharing of multimedia, which are the most common in MSNs, based on the intention serialization algorithm. By using the users' behaviors analysis on intentions, we found that the optimal behavior patterns of each user, and a user's behavior patterns are different due to his/her identity variations in a large volume of session's data.

INTRODUCTION

THE rapid development of Multimedia Social Networks (MSNs) causes the tremendous growth of users and digital contents. It's also convenient for users to access digital contents in MSNs with a large-scale video dataset. Meanwhile, the interaction between user and user, user and system increases. Therefore, providing users with timely and rapidly personalized services considering the complex interaction is now a challenge in the study of multimedia social networks. Generally speaking, multimedia computing can be decomposed into three different stages, from datacentric multimedia compression, content-centric multimedia communication and content analysis, to user-centric social media analysis till today, including user trust modeling, propagation paths mining and digital right sharing, and digital forensics. However, understanding and predicting what multimedia content users' real needs in different situations and contexts have not been well studied.

Context-Aware (CA) was first proposed by Schilit et al in 1994. They defined context as the set of location, people nearby, objects, and the changes

of the objects. Prof. Carl K. Chang proposed the Situ theory by combining the service environment with situation awareness to handle the dynamic update or development of service at run time. Therefore the service can meet the changing needs of users and provide users with personalized service. In order to adapt to the dynamic service environment and make a timely respond to the feedback of service environment, social media services increasingly require situation awareness. In social media networks, the human being is a complex and open system. The individual's intention can change at any time, which also causes a change in the user's needs. Moreover, the user's context and behavior are dynamic. Some studies show that the characteristics of the dynamic change will have different effects in a user's potential needs. A user's intention can be reflected through the acquiring attributes of the user's situation awareness and feedback on resources. The system can formulate a timely personalized service for the user based on user's intention, which will increase the user's service experience.

EXISTING SYSTEM

- In social media networks, the user has different roles in different groups. The different identifications that the user has may cause the user's intention to change. The change of intention reflects the change in user's behavior. The Situ theory does not fully meet the analysis of the intention of users with different identities in the social media environment.

- Shen et al put forward an algorithm which considers the surrounding environment and social network relationship. This algorithm could make use of user's recognized situation, preference, and social network relationship to acquire user's nearest neighbors through the calculation of the user's comprehensive situation similarity, and predict the potential situation user preference to make a recommendation.

- Zhang et al presented an improved N-gram prediction model to predict the possible future web access request of the user through the server log data.

- Bar-David et al stated that existing technology made an attempt to predict the location of moving user according to historical trajectory of moving objects.

- Lee et al designed a recommendation mechanism to predict user's intention and activate appropriate service; an event-condition behavior model and a rule induction algorithm was used to find out behavior patterns of smart phone users, and then, made use of their behavior pattern to predict and recommend the appropriate service for the users.

DISADVANTAGES OF EXISTING SYSTEM:

- In Bar-David et al method the dynamic nature of the moving behavior may lead to errors in prediction.

- Users' data are high noise and discrete in MSNs, especially mobile social networks, and these. Data cannot be used for analysis and mining in time.

- Chang's situation analytics theory is oriented toward the field of software engineering, not completely appropriate for the emerging application scenario of multimedia social networks.

PROPOSED SYSTEM:

- In order to better understand users' intention in MSNs, we greatly need to explore users' online social behavior Patterns.

- One is to enrich and extend the Situ theory outreaching for social domain that is the social media ecosystem, through newly and comprehensively considering user's changeable identity. and the other is to propose a novel algorithm for users' behavior pattern analysis and mining

- This paper primarily extended and enriched the situation analytics framework for the specific social domain, named as *SocialSitu*, and further proposed a novel algorithm for users' intention serialization analysis.

ADVANTAGES OF PROPOSED SYSTEM:

- This paper extends and enriches the Situ theory, and builds a *SocialSitu*framework for the social media networks.

- We design and achieve the intention serialization algorithm in multimedia social networks. The user's frequent intention sequence mode is obtained through the intention serialization algorithm.

IMPLEMENTATION

MODULES

- Admin Module
- User Module
- Intention Sequence Generation

MODULES DESCRIPTION

Admin Module:

The current sequence of a user is compared with intention sequences of the user in the database to predict the current intention of the user to make a rapid and timely response to the user's request and provide a personalized service, intention prediction flowchart is shown in Fig2

The ending point of each *Intention (i) sequence* is used as the result.

User Module:

The user has at least one goal in MSNs, and this corresponds to at least one intention sequence. The user's intention sequence with a specific goal is saved to the database.

Intention Sequence Generation:

SocialSitu(t) sequence of user from starting point to target achievement, namely $I=\{SocialSitu(1),SocialSitu(2), ..., SocialSitu(n)\}$, $n \in N$, *SocialSitu(1)* refers to the starting point; *SocialSitu(n)* refers to the ending point when the target is achieved. Here, *SocialSitu(t)* sequence is directly correlated to the target achievement. Through the intention sequence, the user achieves the target,
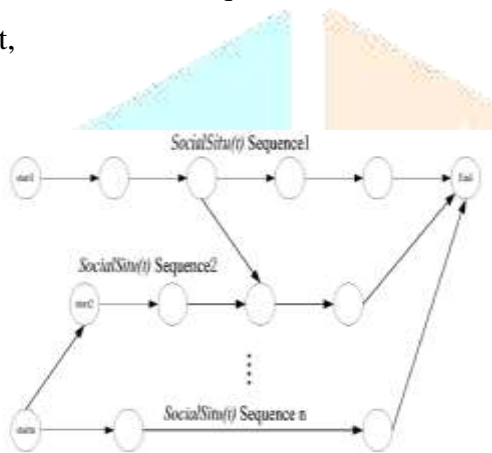

Fig.1. Intention sequence

In the figure, each point refers to *SocialSitu(t)* at a certain moment. The point $startj(1 \leq j \leq n, j \in N)$ refers to the starting point of *Intention(i)*. These starting points can be the same or different. *End* refers to the ending point of *Intention (i)*. Each stripe of *SocialSitu(t)* sequence refers to the sequence composed by different *SocialSitu(t)* that the user passed from starting point to ending point. Except for the ending point, the same nodes may exist in each sequence of *Intention (i)*. In the MSNs, there is at least one sequence which corresponds to the user's intention, namely $i \in N$, $i \geq 1$.

SCREENS

Fig: Home Page

Fig: Admin Home

Fig: View User Intension

Fig: User Home

Fig: Add Friends into Group

Fig: Upload Video

CONCLUSION

The existing MSNs environment increasingly requires situation awareness. Users' environment and behavior are dynamic, and an individual's intention is also to change. In order to adapt to the dynamic changes of user identities in the social domain, this paper extends and enriches the Situ theory, and builds a *SocialSitu*framework for the social media networks. We design and achieve the intention serialization algorithm in multimedia social networks. The user's frequent intention sequence mode is obtained through the intention serialization algorithm. When the user's identify changes, we conclude his behavior pattern with

different ID, and prove that different *SocislSitu(t)* sequences are acquired in the same *Min_Support*with the same intention when his role and group change. In the future works, the existing intention sequence patterns of the user could be adopted to predict the user's more and deeper intentions. Besides, we will employ the *SocialSitu*and the proposed algorithm to improve multimedia recommendation system and some killer applications in MSNs.

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