Activity Prediction using Truval Method in Mobile Social Network

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Abstract—Now a days current trend of online social network is turning towards mobile. Mobile social networks directly reflect our real social life, therefore are an important source to analyze, understand the underlying dynamics of human behaviors (activities). In this report, we are going to study the problems of activity prediction in mobile social networks. We propose a series of observations in two real mobile social network and then propose a method, Truval in activity prediction based on a dynamic factor-graph model for modeling and predicting user activities. An equivalent algorithm based on mean field is presented to efficiently learn the proposed method. We are going to deploy a actual system to collect users day to day activity, behaviors and validate the proposed method on two combines mobile datasets. Shows that the proposed ACTPred model using Truval method can achieve better performance than baseline methods.

Key words: Model Learning, Dynamic Factor Graph Model, Online Social Network

I. INTRODUCTION

We are going to study the activity prediction problem in mobile social networks. Truval, based on a dynamic factor-graph model for modeling and predicting users' activities. We are going to deploying a real system to collect users' mobility behaviors and validate the two datasets of mobile in proposed method. Mobile social networks offer the unique advantage of allow users to find and connect via mobile phones at real time. It includes pattern analysis aspects like (1) attributes correlation: how the attributes of user correlate with his activity status; (2) temporal correlation: how the user's current activity correlates with activity in recent past activities; (3) social correlation: how a user's activity correlates with activities of his friends. In online social networks (OSNs), to evaluate trust from one user to another indirectly connected user. First, all users in the social networks use their real names. Second, in the mobile social networks, the relationships between numbers of user are same as they are in reality. Third, mobile user's mobile history of SMS, calling log, location, etc are all related to real-world behaviors. This provides the unprecedented opportunity for us to understand the dynamics of users' behaviors in the physical social network. We deployed a real system to collect users' mobility including location, behavior records, calling logs, and SMS. We also asked the user to define their daily activities and emotional status. In this analysis, we are going to try to find whether and how friends' activities affect each other. To gaining a fine grained influence patterns, we categorize the relationship between users in four classes that are 'stranger', 'friend', 'good friend' and 'know each other'.

It is well-recognized that users' activities in a mobile social networks are influenced by various complex and subtle factors. In this topic, we aim to answer an interesting question: i.e., can we predict a user's activities based on human's historical behavior log and mobile social network information.

In online social networks (OSNs), to evaluate the trust from one user to another user indirectly connected user, the trust evidence in the trusted paths (i.e., paths builting through intermediate trustful users) should be an carefully treated. Some paths may overlap with each other, apart to a unique challenge of path dependence, i.e., how to aggregate the trust values of multiple dependent trusted paths. OSNs carry the characteristic of high clustering, which makes the path dependence phenomenon common. Another target is trust decay via propagation, i.e., how to propagate trust along a trusted path, considering the possible decay in every node. We finding the similarity between trust propagation and network flow, and also convert a trust evaluation task with path dependence and trust decay into a GFT problem. We propose a modified flow-based trust evaluation scheme GFTrust, we pointing path dependence using network flow, and model trust decay with the leakage associated with each node. With real mobile social network data sets of Epinions and Advogato, analyze that GFTrust can predict trust in OSNs with a high accuracy also verify its preferable properties. To be trusting is to be fooled from time to time; to be suspicious live in the tourment. People facing the trust issues every day in real life. The trust mechanism is a tool used to facilitate decision making in different applications. This report copes with the setting in which a source s is interested in a single target d which can be a person, or a product/service in online social networks (OSNs). Some users have predefined opinions about to estimate whether or not she would like d, based on the aggregate opinions of others. In real life, might first consult her friends for their recommendations. In turn, the friends, if they do not have their opinion so consult their friends, and so on. Based on the cumulative feedbacks receives, she can form her own subject related opinion. The trust evaluation system aims to providing a similar process to produce high-quality trust prediction for users.

II. COMPARATIVE STUDY

A. *Prediction of Activity [1]*

In [1], Gong et.al. has used ACTPred, SVM-Simple, SVM-Net Method to solve Prediction Of Activity problem.It has Existing methods that partition the dynamic Data into different timestamps would not work well. Activity recognition do not consider the problem in the mobile social networks issues.

B. *Indicating the Interests of Community Members [2]*

In [2], Wang et.al. has used k-medoids, Clustering method to solve Indicating the interests of community members problem. It has Community detection approaches are based on structural features, but the structural information of online social networks is often sparse and weak issues.

C. Mobile Cyber-Physical System for Crowd Sensing Applications [3]

In [3], XIPING HU1 et.al. has used Restful method to solve mobile cyber-physical system for crowd sensing applications problem. It has the horizon of individual people and sensing scope and capacity of various mobile devices are limited issues.

D. Find the Motivation Word-Of Mouth by Mobile Devices [4]

In [4], Luarn et.al. has used procedure and participants method to find the motivation word-of mouth by mobile devices problem.

E. Social Media Location Discovery [5]

In [5], Thom et. al. has used Kullback-Leibler Divergence and Query Likelihood methods to solve Social Media Location Discovery problem.It has, limitations apply for the numberof Tweets that can be collected by the stream, our query strategy allows us to capture almost all worldwide messages having either textual geo-tags issues.

F. Improving User Privacy on Android Mobile [6]

In [6], Quang Do1 et.al. has used Permissions Removal, Permissions Selection method to solve User privacy becomes an important, so for protecting the user privacy problem. It has Most research being done on Android privacy requires major modifications to the OS usability issues.

G. Discuss Benefits and Trends to Watch for Mobile Event-Based Applications [7]

In [7], AHMED et.al. has used Event detection method to find benefits and trends to watch for mobile event- Based applications. It has Community tracking and detection, distribution, network metrics usage and estimation, Cross-layer design and resource efficiency issues.

H. Modeling Epidemics Spreading on SN [8]

In [8], Zhang etal. has used Rick communication method to solve Modeling Epidemics Spreading on SN. It has, recover from the disease immediately after being infected with the disease issue.

I. The Internet of Things: A Survey from the Data-Centric Respective [9]

In [9], Kantarci et.al. has used TSCM method to solve Trustworthy Sensing for Public Safety in Cloud-Centric Internet of things problem. It have sensors are not necessarily to be stop forming wireless sensor network (WSN) clouds, but are always built-in sensors in mobile devices providing crowd sourcing-based sensing data issues.

J. IDC Predictions [10]

In [10], Xia et. al. has used recovery method and Conventional virtualization methods to solve problem in Software-Denned Networking. It has controller, performance and standardization and adaption issues.

III. CONCLUSION

In this paper, we have to study a novel problem of activity prediction in mobile social networks. We have to propose a method, called ACTPred, for modeling and predicting users' activities in the social network. We have to present a series of observation and propose a factor graph model to formalize the discovered intuitions in a unified model. For model learning, we employ a Mean Field algorithm to obtain an approximate solution. We can say that on two real social networks demonstrate that the proposed approach can accurately predict users' activities and obtains a clear improvement.

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