IOSR Journal of Computer Engineering (IOSR-JCE)
e-ISSN: 2278-0661,p-ISSN: 2278-8727,
PP 01-04
www.iosrjournals.org

Activity Prediction Using Truval Method in Mobile Social Network

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

Keywords: *Online Social Network (OSN) Activity Prediction, path dependence, trust evaluation.*

I. Introduction

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

It is well-recognized that user's activities in mobile social networks are influenced by various complex and subtle factors [1, 2]. In this, we aim to answer interesting questions: i.e., can we predict a user's activities based on his or her historic behavior log and mobile social network information. In Online social networks, to evaluate the trust between one user to another indirectly connected user, the trust evidence from the trusted paths (i.e. paths built through intermediate trustful users) should be carefully treated. Some paths may overlap with each other and, leading to a unique challenge of path dependence, i.e., how to aggregate the trust values of multiple dependent trusted paths. Online social networks bear the characteristic of high clustering, which makes the path dependence on phenomenon common. Another challenge is trust decay through propagation, i.e., how to propagate trust along with the trusted path, considering the possible decay in each node. We analyze the similarity between trust propagation network flow and convert a trust evaluation task with path dependence and trust decay into a generalized network flow problem. We propose the modified flow-based trust evaluation scheme GFTrust, in which we address a path dependence using network flow, and model trust decay on the leakage associated with each node. In the real social network datasets of Epinions,Advogato are demonstrate that GFTrust can predict trust in OSNs with a high accuracy, and verify its preferable properties.

"To be trusting is fooled from time to time; to be suspicious is to live in constant torment." People face trust issues in every day in real life. The trust mechanism is a tool used to facilitate decision making in diverse applications. This report copes with in the setting in which a source s is interested in a single target d (it can be a person, or product/service he provides) in online social networks (OSNs). Some users have preconceived opinions about d. s might be desire to estimate whether or not she would like d, based on the aggregated opinions of others. In real life, s might first consult her friends for their recommendations. In turn, the friends, if they do not have opinions of their own, may consult their friends, and more than that. Based on the cumulative feedback s receives, she can form her own subjective opinion. A trust evaluation is a system for aims to provide a similar process to produce high-quality trust prediction for users.

II. Previous Work

In [1], Gong et.al. has used ACTPred, SVM-Simple, SVM-Net Method to solve Prediction Of Activity problem. In Mobile cyber-physical system for crowd sensing applications, XIPING HU1 et.al. has used RESTful method to solve mobile cyber-physical system for crowd sensing applications problem. In Social Media Location Discovery, Thom et. al. has used Kullback-Leibler Divergence and Query Likelihood methods to solve Social Media Location Discovery problem. In Improving User Privacy on Android Mobile, 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. In Modeling Epidemics Spreading on SN. Zhang et.al.has used Rick communication method to solve Modeling Epidemics Spreading on SN.

III. System Design

3.1 System Architecture

In proposed system the activity prediction is based on Truval method.Truval, based on a dynamic factor-graph model for modeling and predicting users activities. It consist of pattern analysis aspects like (1) attributes correlation: how a users attributes correlate with his activity status; (2) temporal correlation: how a users current activity correlates with his activity in the recent past; (3) social correlation: how a users activity correlates with activities of his friends. In online social networks (OSNs), to find trust from one user to another indirectly connected user, First, every user in the mobile social network use their real names. Second, in the mobile social networks, the connectivity between users are the same as they are in the reality. Third, users mobile behaviors (e.g., SMS, calling log, location, etc.) are related to real-world behaviors. It provides an unprecedented opportunity to us for understand the dynamics of users behaviors in the physical social network. we deploy a real system to collect users mobility behavior records, including location, calling logs, and SMS text messages. We also ask the user to annotate their daily emotional status and activities. In this analysis, we try to evaluate whether and how friends activities influence each other. To gain a fine grained understanding influence patterns, we differentiate the relationship between users into four classes: stranger, know each other, friend, and good friend.

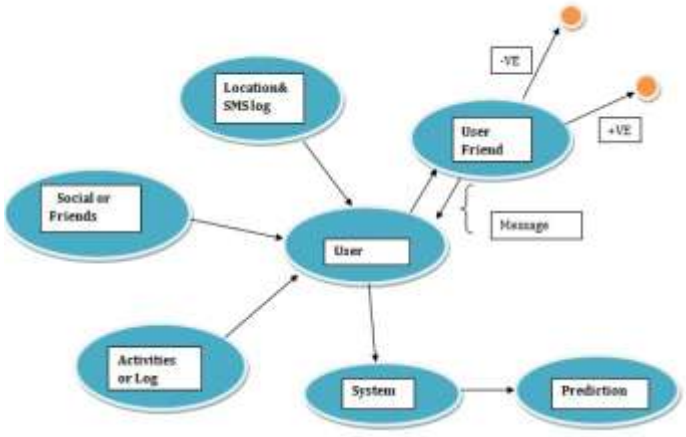


Fig 1 : System Architecture

3.2 Algorithm

We can predict the user's future activities. Instead of constructing a graph model and applying the learned parameter to make an inference on the graph. For simplicity, we utilize an ICA[3] for predicting user's activities. This algorithm can be also stated as a "hard" version of the Mean-Field algorithm. It performs a prediction using only local attributes, and then propagates the prediction probability in the social network for update the prediction results. The update scheme is similar to PageRank. Yt represents the set of activities of all users in the social network. Y is the space of the activity status. In addition, eachuser vi can be associated with a number of attributes Xi (e.g., SMS message and emotion), all edges E, attribute changes X, and activity status changes Y are recorded until time t . Based on these concepts, we can define the tasks of activity prediction in mobile social networks. all edges E, attribute changes X, and activity status changes Y are recorded until time t . Based on these concepts, we can define the tasks of activity prediction in mobile social networks. Transforming node leakage to edge gain factor, *V+; V−* .

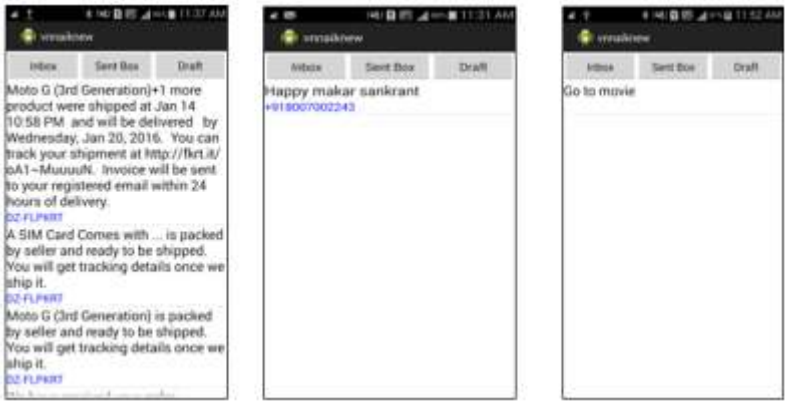
Input: number of iterations, parameters $\boldsymbol{\theta} = (\{\alpha_k\}, \{\beta_{ji}\}, \{\lambda_i\})$, and graph G, learning rate η;
Output: learned parameters $\boldsymbol{\Theta} = (\{\alpha_k\}, \{\beta_{ji}\}, \{\lambda_i\})$;
Initialize parameters;
repeat
  for each $Y_i \in \vec{Y}$ **do**
    $b_i(y) \leftarrow 1$
  end
  repeat
    for each $Y_i \in \vec{Y}$ **do**
      $b_i(y) \leftarrow \alpha\phi_i(x^t, y^t) \cdot \exp\{\sum_{(Y_i,Y_j)\in E}\sum_{y'}\beta_{ij}g(y_i{}^t, y'_j)b_j(y'_j)\}$
      where α is a normalizer.
    end
  until all $b_i(y)$ stop changing;
  for each $\theta_i \in \boldsymbol{\Theta}$ **do**
    Calculate $\boldsymbol{\Delta}_i$;
    $\theta_i^{\text{new}} = \theta_i^{\text{old}} + \eta\boldsymbol{\Delta}_i^{\text{old}}$;
  end
until convergence;

IV. Application

In Online social network Activity of user can predict using truval method from their attributes like social correlation , attribute correlation ,temporal correlation. Like facebook messenger activity prediction done from their social correlation in between users it will predict user activity affect each other depends on trustworthy to predict more accurately.

V. Result Analysis

On clicking Inbox buttons it reads and display all messages contains in phone, and these messages are fetch through Inbox content manager. On clicking Sentbox button it reads and display all messages contains in phone which are sended by user, and these messages are fetch through Sentbox content manager. On clicking Sentbox button it reads and display all messages contains in phone which are sended by user, and these messages are fetch through Sentbox content manager.We create view to select a particular item i.e,button from different controls.We use software like Eclipse Indigo version.We use Java for coding and XML for design the GUI(Graphical User Interface).And our application is supported till Marshmello Android (6.0) version and it uses approximately 512 kb memory.



VI. Conclusion

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

VII. Future Scope

With the popularity of services and applications in OSNs, the trust issues gain more attention both from service customers and providers. Improving the trust evaluation accuracy will help enhance both the customer experience and the service quality. Due to its high clustering, the 11 path dependence phenomenon is more common in OSNs. Although some trust models have been proposed, the two challenges of path dependence during aggregation and trust decay through propagation have not been well addressed**.**

Acknowledgements

I would like to acknowledge of all the people who have been of the help and assisted me throughout my project work. First of all I would like to thankful to my respected guide Mr. N.V.Kapade and head of department Mr. K.V.Ugale, Professor from Department of Computer Engineering for introducing me throughout features needed. The guidance, encouragement and valuable suggestions are receives from them are un- forgettable in my life.This work would not have been possible without enthusiastic response , insight and new ideas from them. I would like to thank my lovely parents for supporting ,encouraging and giving me valuable suggestions, and thank my friends for their valuable support and encouragement. The acknowledgment would be incomplete without mention of the blessing of the Almighty, which helped me in keeping high moral during most difficult period.

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