



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

PHD STUDENT SEMINAR

Point-of-Interest(POI) Recommendation of Location-Based Social Network Using Tensor Factorization

By

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Abstract

With the rapid development of wireless communication technologies, location-based social networks(LBSNs), such as Foursquare and Gowalla, have become very popular. LBSNs have attracted millions of users to share their social friendship and their locations via check-ins. Plenty of the available check-in information make it possible to mine user's preference on locations and provided favorite recommendations. However, check-in data is sparse, long-tail, temporal and sociability, besides, there are various types of content information contained in user's check-in behavior, such as user's social network and temporal influence. It is challenging for mining user's preference when facing with such diverse characteristics and complex content information.

In this work, we propose a novel tensor-based method that are able to simultaneously consider the long-tail characteristic, temporal and user's social influence. Our method is founded upon several innovations, firstly, a user-POIs-time tensor is used to model all user's check-in behaviors. Secondly, considering the long-tail characteristic of user's check-in information, we applied log transformation to eliminate the influence of longtail. Then we fused social information into a tensor factorization framework. Finally, based on the idea of collaborative filtering, users with similarity features should bring stronger influences to each other, we filled the missing entries of a tensor after clustering the user mode. Experiments on a real check-in database show that the proposed method can provide more accuracy location recommendation.

Date : 4 May 2021 (Tuesday)

Time : 3:00pm

Zoom Meeting : <https://hkust.zoom.us/j/3997147282> (Passcode: 123456)

All are Welcome!