

Discovering User Purchasing Behavior from Payment Datasets

Abstract

With the advances in the development of mobile payments, a huge amount of payment data are collected by banks. User payment data offer a good dataset to depict customer behavior patterns. A comprehensive understanding of customers' purchase behavior is crucial to developing good marketing strategies, which may trigger much greater purchase amounts. For example, by exploring customer behavior patterns, given a target store, a set of potential customers is able to be identified. In other words, personalized campaigns at the right time and in the right place can be treated as the last stage of consumption. Here we propose a probabilistic graphical model that exploits the payment data to discover customer purchase behavior in the spatial, temporal, payment amount and product category aspects, named STPC-PGM. As a result, the mobility behavior of an individual user could be predicted with a probabilistic graphical model that accounts for all aspects of each customer's relationship with the payment platform. To achieve real-time advertising, we then develop an online framework that efficiently computes the prediction results. Our experiment results show that STPC-PGM is effective in discovering customers' profiling features, and outperforms the state-of-the-art methods in purchase behavior prediction. In addition, the prediction results are being deployed in the marketing of real-world credit card users, and have presented a significant growth in the advertising conversion rate.

Speaker



Prof Wen Chih Peng
Professor

Wen-Chih Peng was born in Hsinchu, Taiwan, R.O.C in 1973. He received the BS and MS degrees from the National Chiao Tung University, Taiwan, in 1995 and 1997, respectively, and the Ph.D. degree in Electrical Engineering from the National Taiwan University, Taiwan, R.O.C in 2001. Currently, he is a professor at the department of Computer Science, National Chiao Tung University, Taiwan. Prior to joining the department of Computer Science and Information Engineering, National Chiao Tung University, he was mainly involved in the projects related to mobile computing, data broadcasting and network data management. Dr. Peng published some papers in several prestigious conferences, such as IEEE International Conference on Data Engineering (ICDE), IEEE International Conference on Data Mining (ICDM) and ACM Conference on Information and Knowledge Management (ACM CIKM) and prestigious journals (e.g., IEEE TKDE, IEEE TMC, IEEE TPDS). Dr. Peng has the best paper award in ACM Workshop on location-based social network 2009 and the best student paper award in IEEE International Conference on Mobile Data Management 2011. His research interests include mobile computing, network data management and data mining. He is a member of IEEE.

Details

Wednesday, February 13, 2019
4:00 PM - 5:00 PM

Meeting Room 4-4, Level 4

School of Information Systems, Singapore Management University, 80
Stamford Road, Singapore 178902, Singapore

We look forward to seeing you at this research seminar.

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