Colloquium

Department of Computer Science

Dr. Mingxuan Sun

Mingxuan Sun received her Ph.D. degree in Computer Science from Georgia Institute of Technology in 2012. Since August 2014, Dr. Sun has been with Southern Illinois University Carbondale as a Visiting Assistant Professor. Prior to that, she was a Senior Scientist with Pandora Media, Inc. Dr. Sun's research interests include machine learning, data science and visualization, with current emphasis on developing scalable methods to make use of massive data for personalization and recommendation tasks. She has published research papers in leading journals and conferences including PAMI, JMLR, JRSS, NIPS, AISTATS, KDD, WWW, WSDM, etc.

March 19, 2015
11:00 a.m.
Faner 1006

Predictive Modeling of Preference Ranking Data

Abstract

Ranking data arise in myriad scenarios including voters ranking top candidates, search engines returning top-k web pages, and customer preferences over different products in online systems such as Amazon, Netflix, and Pandora. Analyzing large scale ranking data is very important for both business analytics and system engineering, which, however, has not yet been fully studied due to computational difficulties.

In this talk, I focus on efficient modeling to predict user preferences, to improve the algorithm design of online systems, and to gain insights from ranking patterns. In particular, I introduce an efficient non-parametric model to estimate distributions from partial incomplete rankings, which is naturally suited for tasks such as rank prediction and association rule discovery. I further present a framework to explore user-system interactions and improve prediction accuracy when little information is known about the preferences of new users. In addition, I demonstrate how to visualize ranked preference data in a low-dimensional space via multi-dimensional scaling for effective summarization.