Afternoon Tutorial
Network Mining and Analysis for Social Applications

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Abstract

The recent blossom of social network and communication services in both public and corporate settings have generated a staggering amount of network data of all kinds. Unlike the bio-networks and the chemical compound graph data often used in traditional network mining and analysis, the new network data grown out of the social applications are characterized by their rich attributes, high heterogeneity, enormous sizes and complex patterns of various semantic meanings, all of which have posed significant research challenges to the graph/network mining community. In this tutorial, we aim to examine some recent advances in network mining and analysis for social applications, covering a diverse collection of methodologies and applications from the perspectives of *event, relationship, collaboration, and network pattern*. We would present the problem settings, the challenges, the recent research advances and some future directions for each perspective. Topics include but are not limited to correlation mining, iceberg finding, anomaly detection, relationship discovery, information flow, task routing, and pattern mining.

Who Should Attend

This tutorial will be self-contained and is accessible to all data mining researchers, students and practitioners who are interested in network mining and analysis.

Prerequisites

No special prerequisite knowledge is needed to attend this tutorial.

Categories and Subject Descriptors

H.3.4 [**Information Systems**]: Systems and Software—*Information networks*

Keywords

Network Mining; Network Analysis; Social Applications

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Instructors

Feida Zhu is an assistant professor at the School of Information Systems of Singapore Management University (SMU). He obtained his Ph.D. in Computer Science from the University of Illinois at Urbana-Champaign (UIUC) in 2009 and his B.Sc. in Computer Science from Fudan University, China, in 2001. His current research interests include large-scale data mining, graph/network mining and social network analysis. His research on large-scale frequent pattern mining has won the Best Student Paper Awards at 2007 IEEE International Conference on Data Engineering (ICDE) and 2007 Pacific- Asia Conference on Knowledge Discovery and Data Mining (PAKDD). He has founded the Pinnacle Lab, a joint lab with China Ping An Insurance Group to focus on social media mining and analysis for finance industry.

Huan Sun is currently a fourth-year Ph.D. student working with Prof. Xifeng Yan in the Department of Computer Science at the University of California, Santa Barbara. Her research works focus on statistical machine learning and data mining with emphasis on network analysis, text mining, and user modeling. She received the Regents' Special Fellowship in 2010 and the Ph.D. Progress Award in the Computer Science Dept. in 2014. She obtained her B.S. degree in Electronic Engineering and Information Science from the University of Science and Technology of China in 2010, and received Excellent Undergraduate Thesis Award.

Xifeng Yan is an associate professor at the University of California at Santa Barbara. He holds the Venkatesh Narayanamurti Chair of Computer Science. He received his Ph.D. degree in Computer Science from the University of Illinois at Urbana-Champaign in 2006. He was a research staff member at the IBM T. J. Watson Research Center between 2006 and 2008. He has been working on modeling, managing, and mining graphs in information networks, computer systems, social media and bioinformatics. His works were extensively referenced, with over 9,000 citations per Google Scholar and thousands of software downloads. He received NSF CAREER Award, IBM Invention Achievement Award, ACM-SIGMOD Dissertation Runner-Up Award, and IEEE ICDM 10-year Highest Impact Paper Award.