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Data Mining for Social Network Analysis

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Abstract

A social network is defined as a social structure of individuals, who are related (directly or indirectly to each other) based on a common relation of interest, e.g. friendship, trust, etc. Social network analysis is the study of social networks to understand their structure and behavior. Social network analysis has gained prominence due to its use in different applications - from product marketing (e.g. viral marketing) to search engines and organizational dynamics (e.g. management). Recently there has been a rapid increase in interest regarding social network analysis in the data mining community. The basic motivation is the demand to exploit knowledge from copious amounts of data collected, pertaining to social behavior of users in online environments. A prime example of this are the research efforts dedicated towards the Enron email dataset. Data mining based techniques are proving to be useful for analysis of social network data, especially for large datasets that cannot be handled by traditional methods.

This talk will provide an up-to-date introduction to the increasingly important field of data mining in social network analysis, and a brief overview of research directions in this field. We first provide an introduction to social network analysis and then briefly survey the research in this field. Next, an overview of emerging research in data mining for social network analysis is presented. Finally, we will present our own work in two areas: (i) data mining for socio-cognitive analysis of email networks, and (ii) data mining on logs from massively multi-player online (MMO) games to understand social and group dynamics amongst players.

Biography: Jaideep Srivastava is a professor at the University of Minnesota, where he has established and led a research laboratory which conducts research in the information and knowledge aspects of computing. He has supervised 25 Ph.D. dissertations and 50 M.S. theses, and authored or co-authored over 200 papers in refereed journals and conferences. Dr. Srivastava have served on the editorial boards of various journals, including IEEE TPDS, IEEE TKDE, and the VLDB journal. He has also served as Program and Conference Chair for a number of prominent conferences, especially in the area of data mining, and is on the Steering Committee for the PAKDD series of conferences. He has delivered a number of keynote addresses, plenary talks, and invited tutorials at major conferences.

Dr. Srivastava has a very active interaction with the industry, in both consulting and executive roles. Specifically, during a 2-year sabbatical during 1999-2001, he lead a corporate data mining team at Amazon.com (www.amazon.com) and built a data analytics department at Yodlee (www.yodlee.com) from the ground up. More recently, he spent two years as the Chief Technology Officer for Persistent Systems (http://en.wikipedia.org/wiki/Persistent_Systems), where he built an R&D division and oversaw the redesign of the training and technical vitalization program for 2,200+ engineers. He has provided technology and technology strategy advice to a number of large corporations including Cargill, United Technologies, IBM, Honeywell, 3M, and Eaton. He has served in an advisory capacity to a number of small companies, including Lancet Software and Infobionics. Dr. Srivastava has also played an active advisory role in the government

sector. Specifically, he has served as the US federal government's expert witness in a nationally significant tax case. He is presently serving as Senior Technology Advisor to the State of Minnesota, and is on the Technology Advisory Council to the Chief Minister of Maharashtra, India. He is a Fellow of the IEEE, and has been an IEEE Distinguished Visitor.