

# UW CENTRE FOR PATTERN ANALYSIS AND MACHINE INTELLIGENCE IN ASSOCIATION WITH IEEE PRESENTS

## Social Network Analysis by Compression: Not Only Space Saving, but also Insight Gaining

Speaker: **Professor Jian Pei**  
**School of Computing Science, Simon Fraser University**

Date: **Thursday December 6, 2012**

Time: **2:00 pm – 3:00 pm**

Place: **University of Waterloo, Centre for Environmental and Information Technology  
EIT-3142** *\*Refreshments will be served*

### Abstract:

Do you know compressing a social network may provide significant insights into the structure of the network? In this talk, I will argue that compressing a large social network not only helps us to save storage space, but the compressibility of nodes and subgraphs indeed offers a meaningful measurement for social network analysis. Compressing social networks effectively and efficiently is very challenging. I will advocate a systematic framework of social network compression and analysis using multi-position linearization, and discuss the challenges from the theoretical point of view. Moreover, I will present our latest progress on lossless and lossy compression methods. On the compression side, our methods support efficient neighborhood query answering without decomposition. On the social network analysis side, as a showcase, our methods can help to improve community detection.

### Short Biography:

Jian Pei is a Professor at the School of Computing Science, Simon Fraser University, Canada. He is interested in researching, developing, and deploying effective and efficient data analysis techniques for novel data intensive applications, including data mining, Web search, data warehousing and online analytic processing, database systems, and their applications in social networks and media, health-informatics, business and bioinformatics. His research has been extensively supported in part by governmental funding agencies and industry partners. He is active in developing industry relations and collaboration, transferring technologies developed by him and his group to industry applications, and developing proof-of-concept prototypes. Since 2000, he has published 1 textbook, 2 monographs and over 170 research papers in refereed journals and conferences, which have been cited more than ten thousand times. He has served in the organization committees and the program committees of over 160 international conferences and workshops. He is the incoming editor-in-chief of IEEE Transactions of Knowledge and Data Engineering (TKDE), and an associate editor or editorial board member of the premier academic journals in his fields. He is an ACM Distinguished Speaker, and a senior member of ACM and IEEE. He is the recipient of several prestigious awards.

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