Title: Community-based outlier detection from networks

Abstract: Closely related objects that share the same properties or interests form a community. Outlier detection in information networks can reveal important anomalous and interesting behaviors that are not obvious if community information is ignored. Also, people and objects usually evolve synchronously together with their communities. It is interesting to identify "anti-social" or abnormal individuals/groups or trend setters that do not follow their corresponding groups' evolutionary regularity. In this talk, I will discuss methods to identify community outliers in three settings: 1. Community Outliers given a single snapshot of a network [1]; 2. Evolutionary Community Outliers (ECOutliers) given two snapshots of a temporal network [2]; and 3. Community Trend Outliers (CTOutliers) given multiple time snapshots [3].

[1] Jing Gao, Feng Liang, Wei Fan, Chi Wang, Yizhou Sun, and Jiawei Han. 2010. On community outliers and their efficient detection in information networks. In Proceedings of the 16th ACM SIGKDD international conference on Knowledge discovery and data mining (KDD '10).

[2] Manish Gupta, Jing Gao, Yizhou Sun, and Jiawei Han. 2012. Integrating community matching and outlier detection for mining evolutionary community outliers. In Proceedings of the 18th ACM SIGKDD international conference on Knowledge discovery and data mining (KDD '12).


Speaker's Bio: Dr Manish Gupta is a Senior Applied Scientist at the Bing team in Microsoft India R&D Private Limited at Hyderabad, India. He is also an Adjunct Faculty at International Institute of Information Technology, Hyderabad. He received his Masters in Computer Science from IIT Bombay in 2007 and his Ph.D. from the University of Illinois at Urbana-Champaign in 2013. Before this, he worked for Yahoo! Bangalore for two years. His research interests are in the areas of web mining, data mining and information retrieval. He has published more than 40 research papers in reputed refereed journals and conferences such as SIGKDD, SIGIR, WWW and SDM. He has also co-authored two books: one on Outlier Detection for Temporal Data and another one on Information Retrieval with Verbose Queries.