

*The Hong Kong Polytechnic University*  
*Department of Logistics and Maritime Studies*  
*Research Seminar*

## **Graph Mining and Clustering and Their Applications**

by

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**Date: 30 Sep 2009 (Wednesday)**

**Time: 3:30pm - 4:30pm**

**Venue: M714, Li Ka Shing Tower**

**The Hong Kong Polytechnic University**

**(Conducted in English)**

**Abstract:** In this talk, I will introduce two recent work by us on graph mining and clustering. The first one focuses on mining discriminative subgraphs from a set of graphs with class labels. We formulate the mining task as an optimization problem -- finding a subgraph which maximizes the objective function of the discriminative measure. An application of this method is to identify software bug signatures from a set of successful and failing executions.

In the second work, we present a graph clustering algorithm which aims to partition the graph into  $k$  clusters, where each cluster has a dense structure and homogeneous attribute values on the graph vertices. We will show how we balance the two seemingly conflicting goals of structural cohesiveness and attribute homogeneity. This method is useful in social network analysis.

**Bio:** Hong Cheng is an Assistant Professor in the Department of Systems Engineering and Engineering Management at the Chinese University of Hong Kong. She received her Ph.D. from Department of Computer Science, University of Illinois at Urbana-Champaign

in 2008. Her primary research interests include data mining, machine learning and database systems. She has published around 30 research papers in international conferences, journals, and book chapter, including SIGMOD, VLDB, SIGKDD, ICDE, ICDM, SDM, ACM Transactions on KDD, IEEE Transactions on Knowledge and Data Engineering and Data Mining and Knowledge Discovery, and received research papers awards at ICDE'07, SIGKDD'06 and SIGKDD'05. She is a finalist for SIGKDD Doctoral Dissertation Award in 2009.

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**All are welcome!**