Scalable Dense Subgraph Discovery

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In this talk, we will present recent results focus on dense subgraph discovery in large networks. We will introduce the concept of densest subgraph sparsifiers, a randomized algorithm that allows scalable densest subgraph computations on multi-gigabyte (static) networks [1]. Furthermore, we will present state-of-the-art approximation algorithms for dense discovery in large-scale dynamic graphs [2]. We will conclude with a recent generalization of the well-studied densest subgraph problem [3].

1. Michael Mitzenmacher, Jakub Pachocki, Richard Peng, Charalampos E. Tsourakakis, Shen Chen Xu Scalable Large Near-Clique Detection in Large-Scale Networks via Sampling 21st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD 2015)

2. Sayan Bhattacharya, Monika Henzinger, Danupon Nanongkai, Charalampos E. Tsourakakis Space- and Time-Efficient Algorithm for Maintaining Dense Subgraphs on One-Pass Dynamic Streams 47th ACM Symposium on Theory of Computing (STOC 2015).

3. Charalampos E. Tsourakakis The k-clique densest subgraph problem 24th International World Wide Web Conference (WWW 2015);

I will be able to give a talk only on the last day, i.e., July 31st.