Title: The Quest for Dense Structure in Heterogeneous Data Exploration

Abstract
Integrating and analyzing high-throughput heterogeneous data present major algorithmic challenges. We seek robustness to noise, which may originate from numerous sources, and effective scaling as dataset sizes grow rapidly. We are often hampered by the fact that, in many application domains, the ground truth is largely unknown. This problem is sometimes addressed through the use of synthetic data with a known ground truth, but this is fraught with its own confounds.

This talk will focus on emergent techniques for exploratory analysis in the context of multipartite data. We will discuss similarity and distance scores, thresholding, the search for dense structure, and applications in data mining.

Bio
Charles Phillips is a Ph.D. Candidate in the Department of Electrical Engineering and Computer Science at the University of Tennessee. He has served as a research assistant in the Biosciences Division at Oak Ridge National Laboratory and recently received the 2014 Chancellor's Citation for Extraordinary Professional Promise from the University of Tennessee and the ACM/IEEE CS Teaching Assistant of the Year. His research interests include scalable techniques for high throughput omics data analysis and applications of novel graph theoretical algorithms to knowledge discovery. More information can be found at http://web.eecs.utk.edu/~cphillip/.