

Presentation title: Visual analytics of big data

Abstract:

Recent technological advances have led to the production of a big data, and consequently have led to many massive complex network models in many domains including science and engineering. Examples include biological networks such as phylogenetic network, gene regulatory network, metabolic pathways, biochemical network and protein-protein interaction networks. Other examples are social networks such as facebook network, twitter network, linked-in network, telephone call network, patent network, citation network and collaboration network.

Visualization is an effective analysis tool for such networks. Good visualization reveals the hidden structure of the networks and amplifies human understanding, thus leading to new insights, new findings and predictions. However, constructing good visualization of big data can be very challenging.

In this talk, I will present a framework for visual analytics of big data. Visual Analytics is the science of analytical reasoning facilitated by interactive visual interfaces. Our framework is based on the tight integration of network analysis methods with visualization methods to address the scalability and complexity issues. I will present a number of case studies using various networks derived from big data, in particular social networks and biological networks.