Abstract for an Invited Paper
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**Visual analytics for discovering node groups in complex networks**¹
TAKASHI NISHIKAWA, Clarkson University

Given the abundance of relational data from a variety of sources, it is becoming increasingly more important to be able to discover hidden structures in the topology of real-world complex networks. In this talk, I will extend the usual definition of groups as densely connected sets of nodes and show that many real networks have groups distinguished by a diverse combinations of node properties, but not by the density of links alone. To overcome the virtually unlimited ways to potentially distinguish groups, we have developed an exploratory analysis tool that exploit human visual ability. In this visual analytical approach, the user input from visual interaction is integrated into the analysis to discover unknown group structures, rather than simply detecting a known type of structure. I will also address the problem of determining an appropriate number of groups, when it is not known a priori. I will demonstrate that our method can effectively find and characterize a variety of group structures in model and real-world networks, including community and k-partite structures defined by link density, as well as groups distinguished by combinations of other node properties.

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