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Abstract for an Invited Paper
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Visual analytics for discovering node groups in complex networks¹

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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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