Community Detection in Complex Networks using Gossip Spreading

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Mar 22, 2016/12:00-12:50 @BM A6

Abstract: Community detection is one of the key areas in complex networks. A community is defined as grouping of nodes in a network such that nodes in the same community have more connections with each other than with the nodes in the rest of the network. Many algorithms have been proposed so far and they reached successful results on community detection. Real life systems can be described as a complex network, where elements of the system are nodes and relationships are edges in the graph. Community detection is the process of finding groups or clusters of nodes in the network. It is basically a clustering process. As complex network has special properties when compared to random networks, community detection is not a trivial task. There have been many community detection algorithms proposed so far. Most of the algorithms are using a metric called network modularity.We are working on a new community detection algorithm that is based on gossip spreading and label propagation. Our approach uses local connectivity information and assigns node weights which are then used for decision of community label propagation between nodes in the network.

Short Bio: Mursel Tasgin received his Bsc degree from Middle East Technical University in 2002 and Msc from Bogazici University. He is PhDc in Bogazici University. His research interests are complex networks, community detection, information diffusion and gossip in networks. He also works as system administrator of mainframe systems in Kredi Kayit Burosu.