Community Detection Based Clustering

Iveta Dirgová Luptáková, Department of Applied Informatics, University of SS. Cyril and Methodius Trnava, Slovakia, *e-mail*: iveta.dirgova@ucm.sk
Jiří Pospíchal, Department of Applied Informatics, University of SS. Cyril and Methodius Trnava, Slovakia, *e-mail*: jiri.pospichal@ucm.sk

Abstract. Community detection is in principle a clustering of nodes based typically only on their topological properties derived from their positions in the network. Clustering generally uses other information associated with nodes to group them. This paper uses low-dimensional Euclidean distance of nodes to build a network (i.e. proximity or neighborhood graph) and applies community based detection for clustering purposes. Nearest neighbors of nodes were connected by edges and walktrap, edge betweenness, and fast greedy were used for community detection. The proposed approach generally proves superior to basic clustering methods, tested on popular 2D artificial benchmarks, and merits further study. It also has lower computational complexity than other comparable approaches.