**Abstract**

Overlapping community detection is progressively becoming a significant issue in social network analysis (SNA). Faced with massive amounts of information while simultaneously restricted by hardware specifications and computation time limits, it is difficult for clustering analysis to reflect the latest developments or changes in complex networks. Techniques for finding community clusters mostly depend on models that impose strong explicit and/or implicit priori assumptions. As a consequence, the clustering effects tend to be unnatural and stay away from the intrinsic grouping natures of community groups. In this method, a process of enumerating highly cohesive maximal community cliques is performed in a random graph, where strongly adjacent cliques are mingled to form naturally overlapping clusters. These approaches can be considered as a generalization of edge percolation with great potential as a community finding method in real-world graphs. The main objective of this work is to find overlapping communities based on the Clique percolation method. Variants of clique percolation method such as Optimized Clique percolation method, Parallel Clique percolation method have also been implemented. This research work focuses on the Clique Percolation algorithm for deriving community from a sports person’s networks. Three algorithms have been applied for finding overlapping communities in the sports person network in which CPM algorithm discovered more number of communities than OCPM and PCPM. CPM overlapping algorithm discovered 198 communities in the network. OCPM algorithm found 180 different sizes of communities. PCPM algorithm discovered 170 communities and different size of the node in the graph. The community measures such as size of the community, length of community and modularity of the community are used for evaluating the communities. The proposed parallel method found a large number of communities and modularity score with less computational time. Finally, the parallel method shows the best performance is detecting overlapping communities from the sports person network.