

Distributed graph algorithms in an abstract communication model called Node Capacitated Clique are studied in this thesis. In the NCC model, the nodes have a limited communication capacity. The network nodes are connected as a clique and communicate in synchronous rounds. In each round, every node can send or receive messages of  $O(\log(n))$  bits with at most  $O(\log(n))$  other nodes. The input graph is defined on the same set of nodes for the graph problems, where each node knows its neighbor nodes. The algorithms considered in this thesis are computation of  $O(a)$ - orientation and search of Maximal Independent Set. The analysis of these algorithms is already available in theory. These algorithms are implemented and evaluated in this thesis. The evaluation is made by considering the actual results recorded while executing the algorithms in different scenarios.