Complex systems surround us in our everyday lives and their understanding can bring crucial insights into many fields. These systems consist of components (also known as communities) tied together. This thesis focuses on community detection in node-attributed networks, which are networks with some extra information about nodes.

At first, we introduced the necessary terminology and provided an overview of node-attributed benchmarks used for testing. Then we studied the setting of the benchmark and algorithm parameters and discussed the obtained results. The analysis was made on synthetic networks and focused on the impact of the benchmark and algorithm parameters on the results, which we then discussed. In particular, we have found that the algorithms are less influenced by mixing parameter when the size of the network is bigger. We also confirmed our expectation, that results will be negatively influenced by higher mixing and noise parameters.