

## Abstract

Clustering is a process of grouping data into a cluster, it is why the object in a cluster has a very great similarity with other objects in the same cluster, but it is very different to the objects in another cluster. One technique of clustering is Fuzzy C-Means Clustering (FCM). FCM is a technique of fuzzy clustering in which each data point in a cluster is determined by the degree of membership. With this method, the data will be grouped into different clusters according to percentage of membership in each cluster by using classic optimization methods. There are other methods normally used for the optimization process, namely Genetics Algorithm (GA).

GA adopts biological process of evolution that started from genetics recombination, mutation and natural selection to generate a global optimum solution. The classic optimization process is often trapped in the local optimum solution.

This final task is focused on the merging FCM with GA to eliminate the problems of local optimum solution in FCM because GA serves to determine the global optimum cluster centers that are expected to produce more homogeneous data, the distribution of the central cluster and the higher accuracy of clustering results.

**Keyword:** *Fuzzy C-Means, Genetics Algorithm, clustering*