AN IMPLEMENTATION OF  
DYNAMIC CLUSTERING  
BASED ON PARTICLE SWARM OPTIMIZATION  
AND GENETIC ALGORITHM

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Abstract

Cluster analysis is an important data processing procedure in data mining. Through clustering, valuable information such as data distribution and characteristics can be acquired. Clustering has been widely applied in various fields, such as graphic recognition, machine learning and market analysis.

Most clustering methods, like K-means, need to first set the number of clusters. How appropriate the number of clusters is may affect the clustering results. Thus, this final project implements Dynamic Clustering based on Particle Swarm Optimization and Genetic Algorithm (DCPG). Through this algorithm, optimum number of clusters and centroids are determined within the process.

The testing result indicated that the DCPG has produced number of clusters nearly the exact cluster with low Validity Index (VI) and Index value. The DCPG algorithm has better performance than Dynamic Clustering based on Particle Swarm Optimization (DCPSO) and K-means.

Keywords: dynamic clustering, genetic algorithm, particle swarm optimization.