

A New Clustering Method Using Ant Colony Optimization Algorithm

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Abstract

Clustering is grouping of patterns according to similarity in some perspectives. Various data representations, similarity measurements and organization manners, have made several classes of clustering methods that each one can be a strong method in its own field. Some recent researches show that ant colony optimization algorithms have been successfully applied to combinatorial optimization problems. In this paper, we present a new data clustering method for data mining in large databases based on Ant Colony Optimization Algorithm. We adopt simulated annealing concept for ants to decreasingly visit the number of cities to get local optimal solutions. Our simulation results show that the proposed novel clustering method performs better than the Genetic K-Means Algorithm (GKA). In addition, in all cases we studied, our method produces much smaller errors than the GKA.

Keywords:

Ant Colony Optimization Algorithm, Clustering, Data mining, k-means, GKA.