Abstract

The Travelling Salesman Problem (TSP) is a well-known nondeterministic problem aims to find the shortest route that visits each city once and finally returns back to the starting city. Ant Colony Optimization (ACO) technique gives a good solution to TSP, however it takes a lot of computational time. In this paper, a novel algorithm as proposed to solve TSP. Adaptive Affinity Propagation (AAP) was used to optimize the performance of Ant Colony Optimization. The basic idea of the new proposed approach is to group cities into many clusters using AAP and then find the optimal path for each cluster separately using ACO. Thus, the computational time decreases. Experimental results show that the proposed algorithm has preferable performance compared to ACO in term of computational time and optimal path length.

References

2. Uğur, A., and Aydin, D. An interactive simulation and analysis software for solving TSP


Index Terms

Computer Science

Algorithms

Keywords

Travelling Salesman Problem, Ant Colony Optimization, Adaptive Affinity Propagation.