

عنوان مقاله:

A γ -Opt Genetic Algorithm for the Symmetric Traveling Salesman Problem

محل انتشار:

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نویسنده:

Mohsen Abdolhosseinzadeh - Department of Mathematics and Computer Science, University of Bonab, Bonab, Iran

خلاصه مقاله:

The genetic algorithm is a kind of evolutionary metaheuristic algorithm, those find a good solution for some hard problems in a reasonable time. Traveling salesman problem is an NP-hard problem, and its optimal solution is one of the most challenged discussions. So, researchers consider the problem to find a nearby optimal solution instead of the optimal solution. In the symmetric traveling salesman problem, the arc cost parameters satisfy the triangle inequality, in addition to the forward arc costs equal to the backward arc costs in the network. The γ -Opt heuristic could improve an obtained solution by transforming some cross arcs into the straight arcs. There is not any cross arc in the optimal solution, then we apply the γ -Opt algorithm on the generated population by the crossover operator in the proposed genetic algorithm. Therefore, the obtained solution by the proposed γ -Opt genetic algorithm performs a good computation time as well as the optimality. The proposed algorithm accelerates the improving trajectory in the genetic algorithm by the features of the γ -Opt heuristic.

کلمات کلیدی:

.Traveling Salesman Problem, Genetic Algorithm, γ -Opt Algorithm, Metaheuristic Algorithm, Network Optimization

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