

Block Based Imperial Competitive Algorithm with Greedy Search for Traveling Salesman Problem

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Abstract : Imperial competitive algorithm (ICA) simulates a multi-agent algorithm. Each agent is like a kingdom has its country, and the strongest country in each agent is called imperialist, others are colony. Countries are competitive with imperialist which in the same kingdom by evolving. So this country will move in the search space to find better solutions with higher fitness to be a new imperialist. The main idea in this paper is using the peculiarity of ICA to explore the search space to solve the kinds of combinational problems. Otherwise, we also study to use the greedy search to increase the local search ability. To verify the proposed algorithm in this paper, the experimental results of traveling salesman problem (TSP) is according to the traveling salesman problem library (TSPLIB). The results show that the proposed algorithm has higher performance than the other known methods.

Keywords : traveling salesman problem, artificial chromosomes, greedy search, imperial competitive algorithm

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