Abstract

Cuckoo Search (CS) algorithm has exhibited good performance across a wide range of application problems. In this paper, a Modified Cuckoo Search (MCS) algorithm is presented to solve the Quadratic Assignment Problem (QAP), which is a NP-hard problem and is one of the most interesting and challenging combinatorial optimization problems in the research community. To handle the discrete variables of the Quadratic Assignment Problems, the smallest position value (SPV) rule is used to enable the continuous inter-species cuckoo search to be applied to most types of sequencing problems. In the computational experiments, we evaluate the performance of our approach on widely known instances from the literature. In these experiments, we compare the proposed algorithm against the best proposals from the related literature and we conclude that our algorithm is able to report high-quality solutions.

Index Terms

Computer Science

Algorithms
Keywords

Cuckoo Search Algorithm; Meta-heuristics; Optimization; SPV rule, Quadratic Assignment Problem.