Comparison of performances of Jaya Algorithm and Cuckoo Search algorithm using benchmark functions

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ABSTRACT

Nowadays, selecting the best possible solution among several solutions becomes an important skill for engineering and research. Therefore, engineers are turning to optimization methods as a complementary alternative strategy of exhaustive searching. Metaheuristic algorithms have been used successfully for solving different optimization problems. To help engineers select the best metaheuristic algorithms for their problems, there is a need to evaluate the performance of different metaheuristic algorithms against each other using common case studies. This paper aims to compare the performance of two metaheuristic algorithms which are Jaya Algorithm (JA) and Cuckoo Search (CS) using some common benchmark functions. CS and JA have implemented in the same platform (Intellij IDEA Community Edition 2020.2.3) using the same language (Java). The experimental results show that JA has better and consistent performance as compared to CS in most cases in terms of execution time and test suite size; however, the performance of JA is still within acceptable ranges.

KEYWORDS

Jaya Algorithm; Cuckoo Search Algorithm; Metaheuristic algorithm; Optimization; Execution time

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