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An adaptive bi-flight cuckoo search with variable nests for continuous dynamic optimization problems

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Abstract

This paper presents an adaptive bi-flight cuckoo search algorithm for continuous dynamic optimization problems. Unlike the standard cuckoo search which relies on Levy flight, the proposed method uses two types of flight that are chosen adaptively by a learning automaton to control the global and local search ability of the method during the run. Furthermore, a variable nest scheme and a new cuckoo addition mechanism are introduced. A greedy local search method is also integrated to refine the best found solution. An extensive set of experiments is conducted on a variety of dynamic environments generated by the moving peaks benchmark, to evaluate the performance of the proposed approach. Results are also compared with those of other state-of-the-art algorithms from the literature. The experimental results indicate the effectiveness of the proposed approach.

Keywords

Dynamic optimization problems Moving peaks benchmark DOPs MPB
Cuckoo search Learning automata

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