








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Bio-inspired computation: Recent development on the modifications of the cuckoo search algorithm (Review)

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Abstract

Presently, the Cuckoo Search algorithm is attracting unprecedented attention from the research community and applications of the algorithm are expected to increase in number rapidly in the future. The purpose of this study is to assist potential developers in selecting the most suitable cuckoo search variant, provide proper guidance in future modifications and ease the selection of the optimal cuckoo search parameters. Several researchers have attempted to apply several modifications to the original cuckoo search algorithm in order to advance its effectiveness. This paper reviews the recent advances of these modifications made to the original cuckoo search by analyzing recent published papers tackling this subject. Additionally, the influences of various parameter settings regarding cuckoo search are taken into account in order to provide their optimal settings for specific problem classes. In order to estimate the qualities of the modifications, the percentage improvements made by the modified cuckoo search over the original cuckoo search for some selected reviews studies are computed. It is found that the population reduction and usage of biased random walk are the most frequently used modifications. This study can be used by both expert and novice researchers for outlining directions for future development, and to find the best modifications, together with the corresponding optimal setting of parameters for specific problems. The review can also serve as a benchmark for further modifications of the original cuckoo search. © 2017 Elsevier B.V.

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