

Enhanced a hybrid moth-flame optimization algorithm using new selection schemes

Mohammad Shehab, Hanadi Alshawabkah, Laith Abualigah, AL-Madi Nagham

This paper presents two levels of enhancing the basic Moth flame optimization (MFO) algorithm. The first step is hybridizing MFO and the local-based algorithm, hill climbing (HC), called MFOHC. The proposed algorithm takes the advantages of HC to speed up the searching, as well as enhancing the learning technique for finding the generation of candidate solutions of basic MFO. The second step is the addition of six popular selection schemes to improve the quality of the selected solution by giving a chance to solve with high fitness value to be chosen and increase the diversity. In both steps of enhancing, thirty benchmark functions and five IEEE CEC 2011 real-world problems are used to evaluate the performance of the proposed versions. In addition, well-known and recent meta-heuristic algorithms are applied to compare with the proposed versions. The experiment results illustrate that the proportional selection scheme with MFOHC, namely (PMFOHC) is outperforming the other proposed versions and algorithms in the literature.

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