An improved grey wolf optimizer with hyperbolic tangent updating mechanism for solving optimization problems

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ABSTRACT
The original algorithm of Grey Wolf Optimizer (GWO) has a common problem which is too soon to trap in local optima. This paper presents the Improved Grey Wolf Optimizer (IGWO) by modifying the updating mechanism of the original GWO. The main idea of the new improvement is by introducing a nonlinear updating mechanism based on the hyperbolic tangent function to improve the efficiency of the exploration and the exploitation phase and to decrease the probability of trapping in local optima. The effectiveness of the new approach is evaluated on 30 well-known benchmark functions, and the results are compared with the original GWO. The preliminary findings show that the IGWO algorithm is able to obtain very competitive results in terms of objective functions minimization compared to original GWO algorithms.

KEYWORDS
Grey Wolf Optimization; Optimization; Benchmark function; Improved Grey Wolf Optimization

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