

一种改进自适应参数的和声搜索算法

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摘 要: 针对现有和声搜索算法 (HS) 的提前收敛、收敛速度缓慢、参数选择不佳和容易陷入局部最优等缺点, 本文提出一种自适应和声搜索算法参数的改进方法 (DCNHS), 在算法中加入新的动态方法并且引入带有自适应参数的柯西、正态分布随机数来实现改进算法参数的自适应. 通过与目前性能较为突出的几种改进的 HS 算法、PSO 算法、GA 算法相比较, 本文提出的改进算法 (DCNHS) 在若干标准优化算法测试函数仿真中, 寻优更加精确, 收敛更加迅速, 并具有较强的跳出局部最优的能力.

关键词: 和声搜索算法; 柯西、正态分布随机数; 自适应; 标准优化算法测试函数

An Improved Adaptive Parameters Harmony Search Algorithm

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Abstract: The existing harmony search algorithm (HS) in advance convergence, slow convergence, parameter selection is poor and easy to fall into local optimum, we propose an adaptive harmony search algorithm parameters improved method (DCNHS), the algorithm the new method was added and the introduction of dynamic Cauchy, normally distributed random number with adaptive parameters to achieve improved adaptive algorithm parameters. With the current performance of the more prominent of several improved HS algorithm, PSO algorithm, GA algorithm compares the improved algorithm proposed (DCNHS) in a number of standard test functions optimization algorithm simulation optimization is more accurate, more rapid convergence, and has strong ability to escape from local optima.

Key words: harmony search algorithm; cauchy, normally distributed random numbers; adaptive; standard optimization algorithm test functions

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