

最优小波转移的逆向果蝇优化算法

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摘 要: 针对果蝇优化算法在优化复杂高维问题易陷入局部最优, 从而导致收敛速度慢, 寻优精度较低的问题, 提出一种最优小波转移的逆向果蝇优化算法. 鉴于果蝇优化算法只向种群最优个体聚拢的算法局限性, 增加了小波转移的逃逸机制以保证迭代方向选择的正确性. 在种群多样性较低时对群体进行逆向小波转移, 指引种群从局部限制逃离向全局最优解处收敛. 通过仿真实验测试, 新算法可以有效保持种群正确的进化方向、有效抑制算法陷入局部最优并具有良好的优化性能.

关键词: 果蝇优化算法; 小波转移; 逆向转移; 局部最优

Reverse Fruit Fly Optimization Algorithm of Optimal Wavelet Transfer

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Abstract: In this paper, Reverse fruit fly optimization algorithm of optimal wavelet transfer (WTRFOA) is proposed to solve the problem that the fruit fly optimization algorithm (FOA) is easy to fall into the local optimum, which leads to the slow convergence rate and the low precision. By analyzing the limitation of the fruit fly algorithm only moving to the optimal individual, the strategy, naming escape mechanism of the wavelet transfer, is proposed to ensure the correctness of the iterative direction selection. Carrying out the reverse wavelet transfer when the population diversity is low, to guide the population to escape from the local limit. Converges to the global optimal solution. Simulation results was shown that the new algorithm can effectively keep the optimal evolution direction of the population, suppress the algorithm into the local optimum and have good optimization performance.

Key words: fruit fly optimization algorithm; wavelet transfer; reverse transfer; local optimum

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