

一种改进算的鸟群算法

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摘要: 针对鸟群算法(BSA)在警戒行为和飞行行为的模型设计中存在的不足, 本文在原算法的基础上, 为了增加鸟群警戒行为的靶向性, 在选取目标个体时, 采用了当前最优个体替代原算法中随机选取的方法; 为了克服飞行行为中生产者迭代步长过大而容易导致过度跳跃的不足, 采用步长加权平均思想予以改进. 通过对 12 种典型的不同类型基准函数进行实验测试, 结果表明改进策略对算法的全局搜索能力和优化精度都有较大的提高, 能达到更好的收敛速度和寻优精度.

关键词: 鸟群算法; 警戒行为; 飞行行为; 优化

An Improved Algorithm for Bird Swarm Optimization

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Abstract: In this paper, two strategies are employed to overcome the shortcomings of the bird swarm algorithm (BSA): (1) in order to improving the search targeting of BSA vigilance behavior, the current optimal individual is adopted instead of random selection; (2) the weighted average step takes the place of the t-step in order to overcoming of sharp jump which originates from the iteration step-size of BSA flight behavior. Experimental results show that the proposed algorithm can improve both the global search ability and the optimization accuracy of BSA, and achieves a better convergence speed.

Key words: bird swarm; vigilance behavior; flight behavior; optimization

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