

一种基于正向学习和反向学习的改进鸡群算法

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摘要: 针对标准的鸡群算法容易陷入局部最优的缺陷, 提出一种基于正向学习和反向学习的改进鸡群算法. 公鸡粒子在每次迭代中向最优粒子正向学习, 使算法迅速进入最有希望的区域寻找食物; 而在算法陷入局部最优解时向最差粒子反向学习以跳出局部最优. 通过对 6 个典型的基准测试函数的仿真表明, 改进算法具有较强的全局搜索能力, 同时寻优精度和收敛速度比原算法也有较大的提高. 尤其是在处理高维函数问题上, 改进算法表现出了较强的优势.

关键词: 鸡群算法; 正向学习; 反向学习

An Improved Chicken Algorithm Based on Positive Learning and Reverse Learning

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Abstract: A Chicken Swarm Optimization with Positive Learning and Reverse Learning (PRCSO) was proposed to solve the defect that traditional Chicken Swarm Optimization (CSO) is easy to fall into local optimum. The cock crow always learns the optimal particles in each iteration, so that the algorithm can quickly enter the optimal region to find food; and when the algorithm falls into the local optimal solution, Learn to jump out of the local optimal. The results on six typical standard test functions show that the improved CSO not only improves the global search ability, but also the search efficiency, search accuracy and convergence rate are better than the traditional CSO. Especially in dealing with high-dimensional function problems, the improved HJCSO shows a strong advantage.

Key words: chicken swarm optimization; positive learning; reverse Learning

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