基于莱维飞行的灰狼优化算法

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摘　要：针对灰狼优化算法在求解比较复杂的非线性优化问题时容易早熟收敛，陷入局部极值以及进化后期精度低的情况，在原始的灰狼优化算法(GWO)引入了一种属于随机游动的莱维飞行，提出了一种基于莱维飞行的灰狼优化算法（LGWO）.在头狼位置进行更新时，利用莱维飞行对头狼进行全局搜索，防止狼群丧失多样性，易陷入局部最优解.通过仿真，与经典的布谷鸟搜索算法和粒子群算法等群智能算法进行对比，结果表明基于莱维飞行的灰狼优化算法能够有效地提高解的精度并加快收敛速度，寻优效果更优.

关键词：灰狼优化算法；莱维飞行；群智能算法

Grey Wolf Optimization Algorithm Based on Levy Flight

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Abstract：The grey wolf optimization algorithm (GWO) has some demerits on solving more complex nonlinear optimization problems , such as relapsing into local extremum, slow convergence velocity and low convergence precision in the late evolutionary. this paper proposed a kind GWO algorithm based on levy flight (LGWO) via introducing of levy flight that is random walk. When updating the wolf's position, levy flight was used to conduct a global search on the wolf to prevent the wolves from losing diversity and easily falling into a local optimal solution. Through simulation, compared with the classic cuckoo search algorithm、particle swarm optimization algorithm and other group intelligence algorithms, the results show that the grey wolf optimization algorithm based on levy flight can effectively improve the accuracy of the solution and convergence speed, and the optimization effect is better.

Key words：　grey wolf optimization algorithm；levy flight；group intelligence algorithms

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