

# 具有记忆性的自适应布谷鸟搜索算法

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**摘 要：**针对标准布谷鸟搜索算法后期收敛速度慢、易陷入局部最优等缺点，本文提出了一种具有记忆性的自适应布谷鸟算法（MACS）。根据种群适应度与个体适应度准确判定算法收敛程度并分别对不同鸟窝进行自适应调整，使算法在迭代过程中保持收敛速度与精度的平衡；通过在偏好随机游动环节中引入记忆策略，算法能够充分利用上一代的有效信息，提高了其跳出局部最优的能力。仿真实验结果表明，MACS 算法各方面性能较标准算法及其改进版本具有明显优势。

**关键词：**布谷鸟算法；莱维飞行；收敛程度；自适应方法；记忆策略

## Adaptive Cuckoo Search Algorithm with Memory Strategy

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**Abstract:** The cuckoo search algorithm (CSA) is a new nature-inspired algorithm which is simple and efficient. This algorithm uses Lévy flights random walk and biased random walk to search for new solutions. Aiming at increasing the performance of cuckoo search algorithm via improving parameter, this paper presents Adaptive Cuckoo Search Algorithm with Memory Strategy(MACS). By adjusting Lévy flight adaptively based on premature convergence degree and the fitness of the cuckoo, the algorithm makes a compromise between global search and local search. The ability of local search has improved via introducing memory strategy. Simulation results have showed that the performance of MACS is obviously improved in the aspect of the convergence and accuracy compared with the CS algorithm and other improved editions.

**Key words:** cuckoo search algorithm; Lévy flight; average fitness; adaptive method; memory strategy

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