

一种改进的变步长的萤火虫算法

李恒¹, 郭星^{1, 2}, 李炜^{1, 2}

(1 安徽大学 计算智能与信号处理重点实验室, 安徽 合肥 230039;

2 安徽大学 计算机科学与技术学院, 安徽 合肥 230601)

摘要: 为了克服人工萤火虫算法(Glowworm swarm optimization, GSO)在求解全局优化问题时,存在收敛速度慢,求解精度不高、易陷入局部最优等问题.提出了一种改进的变步长自适应的萤火虫优化算法.采用该算法可在一定程度上避免因过早的成熟陷入局部最优,并且可在后期达到更高的精确度.实验仿真证明,该算法较明显的提高了其收敛速度和精确度.

关键词: 萤火虫算法; 全局优化; 变步长; 函数优化

An Improved Glowworm Swarm Optimization

Algorithm with Changing Step

LI Heng¹, GUO Xing^{1, 2}, LI Wei^{1, 2}

(1 Key Laboratory of ICSP, Ministry of Education, Anhui University, Hefei 230039, China;

2 School of Computer Science and Technology, Anhui University, Hefei 230601, China)

Abstract: In order to overcome the basic artificial firefly algorithm (Glowworm swarm optimization, GSO) in solving global optimization problems, slow convergence speed, precision is not high, easily falling into the master problem. So, The paper puts forward an improved variable step optimization algorithm. To some extent, adopt the algorithm can avoid premature mature into a local optimum, and can achieve a higher accuracy in the later. Through simulation experiment, proves that the algorithm on the convergence speed and precision are obviously improved.

Key words: GSO; global optimization; changing step; function optimization

作者简介:

李恒 男, (1992-), 硕士研究生.研究方向为科研成果计算与信号处理.E-mail:13063213016@163.com.

郭星 男, (1983-), 博士, 讲师.研究方向为模式识别与信号处理.

李炜 男, (1969-), 教授.研究方向为模式识别、智能计算与信号处理.