

其它

基于核分布估计的动态多目标优化进化算法

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摘要:

建立了一种近似估计下一环境进化种群和问题的Pareto最优解集的核分布估计方法, 当问题环境发生改变时, 算法利用以前不同环境搜索到的有用解信息对下一环境进化种群及Pareto最优解集进行近似估计, 极大地提高了算法的搜索效率。在对进化算子的合理设计基础上提出了一种核分布估计的动态多目标优化进化算法。通过对4个常用标准测试函数所作的数据仿真实验表明: 提出的算法是十分有效的。

关键词: 动态多目标优化 进化算法 分布估计 Pareto最优解

A dynamic multi-objective optimization evolutionary algorithm based on estimation of core distribution

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Abstract:

An estimation of core distribution method to approximately estimate the evolution population and the Pareto optimization solution set for the problem in the next environment was given. When a change in the environment was detected, the algorithm used the collected information of solutions from the previous difficult environments to predict the evolution population and the Pareto optimization solution set in the next environment. Consequently, the searching effectiveness of the proposed algorithm can be greatly improved. By the reasonable designing of evolution operators, a new dynamic multi objective optimization evolutionary algorithm based on estimation of core distribution was proposed. Simulations were made on four widely used benchmark problems, and the results indicated that the proposed algorithm was very effective.

Keywords: dynamic multi-objective optimization evolutionary algorithm estimation of distribution Pareto optimization solutions

收稿日期 2010-03-15 修回日期 网络版发布日期

DOI:

基金项目:

陕西省自然科学基金基础研究计划资助项目(2009JM1013); 陕西省教育厅科学研究计划资助项目(09JK329); 宝鸡文理学院重点科研计划资助项目(ZK0840)

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