研究、探讨

一种改进的非支配排序多目标遗传算法

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摘要 多目标进化算法的研究目标主要是使算法快速收敛，并且广泛而均匀分布于问题的非劣最优域。在NSGA-II算法的基础上，提出了一种新的构造种群的策略——按照聚集距离选取部分非支配个体，并选取部分较好的支配个体形成下一代种群。该策略与原算法相结合后的算法（NSGA-II+IMP）与原NSGA-II进行比较，结果表明新算法较好地改善了分布性和收敛性。

Improved non-dominated sorting genetic algorithm for multi-objective optimization

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Abstract

The main goal for research on MOEAs is to make the algorithms converge rapidly，and gain solutions that are widely and uniformly scattered in the non-dominated feasible areas of the problems.This paper，which is on the basis of NSGA2，propo-ses a new strategy for generating new population，that is not only selecting a certain proportion of non-dominated individuals according to the crowding distance，but also choosing some other dominated but potential individuals to form the next generation.The new strategy-combined algorithm（NSGA-II+IMP） is compared with the original NSGA2，and the result shows that the new one can better improve the diversity and the convergence of the solution set.

Key words multi-objective evolutionary algorithm multi-objective optimal problem population maintenance crowding distance diversity maintenance strategy

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