学术探讨

遗传算法中致死染色体的利用

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摘要 本文提出了一种基于免疫算子的致死染色体复活与利用方法。根据问题的特征信息，优秀染色体和致死染色体的基因信息提取疫苗，通过接种疫苗和免疫选择，以及在"活岛"和"死岛"进行致死染色体和非致死染色体的迁移，实现致死染色体的复活与利用。0-1背包问题的实验结果表明，该方法可以有效改善求解约束优化问题遗传算法的性能。

A method of using lethal chromosome of genetic algorithm

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Abstract

Lethal chromosomes unsatisfied with constraints may come into being in GA for constrained combinatorial optimization problems. If its number is too large in a pool, the GA's implementing and searching performance will degrade. This paper proposed a method to revive lethal chromosome based immune operator. The main process is that, constructing a vaccine according to the characteristic information of problem to be solved, excellent chromosome and the lethal chromosome, and then vaccinating and immune selecting, after that, immigrating lethal chromosomes and revived chromosomes between two islands. Applying the method to 0-1 knapsack problem, the numerical results show that the proposed method can effectively improve the performance of GA.

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