

【文献調査】

An evolutionary many-objective optimization algorithm based on dominance and decomposition

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1 タイトル

支配と分解に基づく進化的多目的最適化アルゴリズム

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3 出典

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4 アブストラクト

進化的多目的最適化において、収束と多様性のバランスを調整することは重要な問題である。2つおよび3つの目的を含む様々な実践的な問題におけるニッチを実証してきたほとんどの既存手法は、多目的最適化問題における重大な課題に直面している。本論文では、多目的最適化における支配と分解に基づいた戦略を組み合わせた統一的パラダイムを提案する。我々の主な目的は、進化過程の収束性と多様性のバランスを取るために、支配と分解に基づく戦略の両方の利点を活用することである。提案手法の性能が検証され、最大15目的を持つ多数の制約なしベンチマーク問題に4つの最先端のアルゴリズムと比較された。実証結果は、考慮した全てのテスト問題において提案手法の優位性を十分に実証した。さらに、我々は制約付き多目的問題を開放するためにこの手法を拡張する。近年提案された他の2つの制約付き最適化手法と比較して、提案手法は全ての制約付き最適化問題で高い性能を示した。

5 キーワード

Constrained optimization, decomposition, evolutionary computation, many-objective optimization, Pareto optimality, steady state.

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