

微粒優化法的理論探討及演算法改良之研究

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摘要

回顧從1995年以來的開發過程,微粒優化法 (Particle Swarm Optimization, PSO) 由Kennedy 教授和Eberhart教授提出, 並成功解決了許多優化上的問題。 PSO演算法是一種智慧型計算技術, 其優點是收斂速度快且參數設定較少。 本文為了進一步提高算法效率, 提出一種改良的PSO演算法, 是在基本PSO算法基礎上引入了遺傳算法的突變機制。 由於PSO參數一直沒有個固定設法, 所以本文研究了不同參數選擇對演算法的影響, 把優化問題分為三類(簡易、中等、困難), 本文提出的改良微粒演算法分別處理三類優化問題。 然後根據測試結果對其參數設置進行系?性分析。

關鍵詞: 微粒優化法、突變

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