平行基因演算法應用於產品組態管理之研究

張浚銘、葉進儀

E-mail: 9315390@mail.dyu.edu.tw

摘 要

產品組態管理(Configuration Management)是用來描述產品設計的一些特性資料，這些資料包含了產品結構、構成元件、幾何資料以及零件組裝關係等被用來表達產品如何建構的資料。在產品資料管理系統之中，組態管理就是利用產品組裝來管理產品及相關零組件資料的一項設施。透過組態管理，人們在產品資料的管理及應用上會更簡單並更有效率。 本研究將實數型基因演算法(Real-Valued Genetic Algorithm，GA)應用於產品資料管理(Product Data Management，PDM)之產品組態管理(Configuration Management)領域。接著為提升求解效能，亦嘗試結合由電腦叢集(PC Cluster)所建置而成的平行電算技術，我們稱其演算機制為平行基因演算法(Parallel Genetic Algorithm，PGA)，經由反覆的實驗測試結果，發現此一新型態的演算理念，在求解品質與時效性上能有效的提升與改善。

關鍵詞 : 產品組態管理 ; 實數型基因演算法 ; 電腦叢集 ; 平行基因演算法

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