

長方體物件堆疊問題之啟發式求解研究

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摘要

在物流業、食品業及製造業的日常運作中，長方體物件的堆疊作業出現頻繁，例如倉庫內物件的擺放、貨運卡車裝載貨品等，此等情況屢見不鮮，因此物件緊密的堆疊使其空間能有效利用，將可節省業者不少的空間成本。長方體物件之堆疊問題在演算求解上屬於難解的NP-Complete問題，而遺傳基因演算法對於求解NP-Complete的問題有顯著的成效，因而本研究採用遺傳基因演算法並加入部分之修改。本研究提出一種應用於長方體物件堆疊問題的協力進化遺傳演算法，在此演算法中，將長方體物件群組區分為諸多族群，而每個族群各自進行演化再進行合併組合，產生多組堆疊物件擺放順序，再搭配「下後左角」的邏輯啟發式堆疊法則，求得長方體物件堆疊問題的堆疊演算方式。

關鍵詞：長方體、堆疊問題、遺傳基因演算法、協力進化遺傳演算法

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