以群蟻演算法求解Connector為基之組裝規劃問題

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摘 要

所謂的產品組裝，就是透過組裝的作業將產品零件組合成最終產品。而組裝規劃則是在考慮種種因素下，規劃出一個好的組裝順序，在過去Rembold et al. (1985)曾經說過產品組裝成本約佔整體產品製造成本的50%，因此一個好的組裝順序就顯得相當重要。 基於上述內容，本研究將探討以群蟻演算法求解以Connector-based之組裝順序。何謂Connector，其以零件間的結合作為產品描述的依據，並且包含著設計階段層次的建構單元，所以可包含更多的工程資訊，作為建構產品組裝順序之考量因素。本研究將以Tseng et al.(2004)所建議之零件歸併法則建構Connector-Based組裝模型，透過此種法則將可明顯降低求解的複雜度，且縮小解空間，使得搜尋最佳解更為容易。 在探討組裝規劃的過程中必須考量組裝限制條件，在過去張銀和(2004)以引導式基因演算法解決了Connector-Based的限制問題，但其求解效果並不佳，對於較複雜之問題，往往求解品質並不好，因此本研究將以群蟻演算法來探討相同之問題，並且透過實際範例的比較，證明本研究之方法優於張銀和(2004)所提出之引導式基因演算法。

關鍵詞 : 組裝規劃 ; 群蟻演算法 ; Connector

目錄

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