於關聯派翠網路強化UML活動圖及其應用之研究

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摘 要

統一塑模語言(unified modeling language, UML)的活動圖(activity diagram, AD)為系統流程分析上重要的塑模工具之一，可用於描述系統的狀態、資料流與狀態間的關係，在軟體開發初期，做為評估、分析、規劃等之用途，可有效提高軟體品質及專案成功率。然而目前活動圖仍有以下之缺點，1)缺乏支援模擬能力；2)動態語義之限制及3)欠缺驗證的能力。關聯派翠網路(associative petri net, APN)屬於高階派翠網路(petri net, PN)，擁有PN的所有特性，APN擁有完整的語義、模擬及驗證的能力，強調動態流程的轉換、邏輯推理、平行處理及結合物件導向等特性，可用於系統建模、工作流程及系統分析上。因此，本研究提出一套APN映射至活動圖之方法，透過系統化的步驟可將活動圖完整映射至APN，並賦予其完整的語義，以改善活動圖模擬及驗證的能力，有效提升軟體開發效率及成功率。最後，本研究提出一個例子，並透過「可達樹」及「關聯矩陣與狀態方程式」，驗證本研究所提出方法的可驗證性與可行性。

關鍵詞 : 關聯派翠網路、統一塑模語言、活動圖、軟體工程、轉換

目錄

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