高階相關法在圖形及表格處理上的應用

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摘 要

本論文是針對傳統高階相關法則的基礎原理來做推廣應用。高階相關法原用於三度空間中的點目標偵測，方法是以遞迴的方式來計算連續資料間的時空相關性，以擷取二元影像中的軌跡資訊。由真實資料的模擬可證明即使是在一個信號雜訊比很低的環境中，應用高階相關法都能得到相當好的目標偵測率和雜訊排除率，並能對使用的資料作最少的假設，解除許多傳統方法上的限制。以高階相關法與其處理相關性資料的能力，只要稍微加以修正便可以推展到二維影像的處理上。最直覺的應用就是影像中曲線的偵測，不論是二元影像或是灰階影像。原因是目標點組成點間的相關性滿足了高階相關法的標準。這些包含了文件的自動處理包括了文件表格的辨識、分類與輔助文字辨識系統濾除表格格線；影像特徵的擷取包括了邊緣偵測、線段偵測及斑點偵測。本論文將會證明上述各項的真實性、正確性與效率性。此外高階相關法則已被證明能夠以類神經網路的架構來執行，因而更能提高上述處理的執行速度，其能達到即時和並行處理的效果。

關鍵詞 : 高階相關法 ; 格線分析 ; 表格辨識 ; 文字辨識 ; 表格濾除 ; 線段偵測 ; 邊緣偵測 ; 斑點偵測

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