影像分析技術於交叉路口車流之調查

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摘 要

道路監控自動化一直都是智慧型運輸系統的目標。然而目前傳統監測交叉路口車流的工作大多仍需仰賴人工方式，目測時間內通過的車流並加以統計，因此非常耗費人力與時間成本，而準確度也不見得精確。本研究以多攝影機方式分別拍攝來源區域與目的區域，並進行偵測及抽取並轉換特徵，然後再存進特徵暫存庫。抽取目的區域車輛特徵後，此時依照時間差與來源區域畫面車輛進行特徵比對。藉由抽取出的物件特徵值(中心位置、外形、顏色)進行轉換並比對，如果特徵皆符合就代表為同一台前景車輛。此外，本研究可利用連續影像間車流的變動自動判定出關注區域(ROI)，針對ROI區域內車輛進行偵測，減少對整張畫面的處理時間。本研究成果可節省人力成本，不必透過人工方式統計，另一方面能自動判定並統計轉向車流。透過系統自動統計調查更能有效掌握交叉路口車輛轉向情況，藉以提供車流資訊給交通控制中心，有效控管交通號誌，疏解交通流量，減少車道閒置的狀況，讓每個車流區域達到最有效率的利用。

關鍵詞 : 多攝影機、視訊監控系統、特徵抽取、影像分析

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