以機械視覺為基礎之C型口罩瑕疵檢測系統研究

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摘 要

本研究主要應用機器視覺系統於C型口罩之瑕疵自動檢測，將研發影像處理技術包括兩個部份，第一部分是影像前處理，包括色彩空間轉換、影像濾波、形態學等方法；第二部份是口罩定位與瑕疵檢測，包括影像角點特徵偵測、角點特徵比對、特徵點座標轉換、影像相減、瑕疵位置判定等，是以檢測C型口罩表面不織布之瑕疵品，達到自動化檢測之目的。C型口罩表面不織布之瑕疵品主要可分成破裂、汙點、超音波焊接不良等三種瑕疵情形。首先由影像前處理得到C型口罩的輪廓形狀，再經由角點偵測技術得到此輪廓形狀的特徵點，將這些特徵點與標準影像的角點特徵點比對，已得到相對應的角點位置，利用這些相對應的角點位置，以最小平方法求得待測影像與標準影像之間位置平移量和旋轉量，再透過影像比對技術，以偵測出C型口罩瑕疵位置，最後，由實驗驗證所提方法的可行性，瑕疵辨識成功率達到97%以上。

關鍵詞 : 機器視覺 ; 影像處理 ; 瑕疵檢測 ; C型口罩

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