基於傅立葉描述子與支持向量機之步態模式分類

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摘 要

在智慧型視訊監控系統(Intelligent Video Surveillance System； IVSS)中，結合人體運動分析與生物特徵識別已經成為一個新的研究方向。步態識別是一種非接觸式、遠距離的身份識別方式，透過視訊中行人的走路方式來進行身份識別。步態識別與其它基於生物特徵的方法相比，例如指紋識別與虹膜識別等，由於它具有不侵犯被識別者的特性，同時可以在相對較遠的距離對行人進行身份識別而大受歡迎。 本研究利用自行開發的步態識別系統來找出在監控區域中需要被輔助的弱勢族群，其本文定義為撐拐杖、孕婦與孩童等。由於不同族群間具有不同的步態行為，因此可利用族群間之特徵差異來實現自動弱勢族群識別。由於運動目標偵測為實現弱勢族群識別之基礎，本文首先利用絕對背景建立、背景相減法、陰影去除、形態學處理與快速八連通等方法將運動目標擷取出來；緊接著，對運動目標進行特徵擷取，在本文中我們採用形狀邊界點特徵和傅立葉描述子做為識別特徵；最後，對於擷取的步態特徵再利用支持向量機(Support Vector Machine；SVM)來進行族群的分類與識別，透過分類器輸出，透過形狀邊界點特徵K=64時和傅立葉描述子N=20時的識別率可達79%和81%的辨識結果。

關鍵詞 : 步態識別、支持向量機

目錄

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