HUMAN BEHAVIOUR RECOGNITION, IDENTIFICATION, AND COMPUTER INTERACTION

Edited by

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Real-Time Human Detection for Video Surveillance

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20.1 Introduction

Recent research in computer vision has increasingly focused on building systems for observing humans and understanding their appearance, movements, and activities, providing advanced interfaces for interacting with humans, and creating realistic models of humans for various purposes (Ogale, 2006). For the last decades, video analysis and understanding has been one of the main active fields in computer vision and image analysis where applications relying on this field are various, like video surveillance, object tracking and traffic monitoring. (Allili et al, 2007). The ability of computer vision to recognize human from the image and works similar to human eye has made computer vision to be used widely in various applications especially in video analysis.

Although a tremendous amount of work has been done in computer vision to enhance existing visual surveillance system, there are many issues still open and deserved further research. Among those issues are the precision and performance of moving human detection especially in real-time system currently available in the market, as well as the surveillance video which are being tackled in this work.

20.2 Related Work

Reliable human detection is a key algorithmic component of many application-oriented computer vision systems, for instance in automated visual surveillance, automotive safety, human-computer interaction and multimedia processing. High detection rates and low false alarm rates are essential for achieving robustness in higher level vision tasks such as tracking or activity recognition (Beleznai and Bischof, 2009). The goal of human detection is to achieve robustness to environmental changes while providing high successful detection rate, low false detection rates, and able to deliver acceptable performance in real-time video