HUMAN BEHAVIOUR RECOGNITION, IDENTIFICATION, AND COMPUTER INTERACTION

Edited by

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Human Tracking Algorithm for Video Surveillance

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21.1 Introduction

Video surveillance is an important tool to enhance public safety and privacy protection. According to Hosik et al (2009), surveillance cameras as in CCTV systems for instance are widely deployed in strategic places such as airports, banks, and public transportation facilities, as well as in public places such as stores, elevators, and hallways. Hosik et al (2009) added that the surveillance cameras in London provided key photos of the men who bombed the underground system in July 2005 while the latest terrorist attack in London was foiled in 2007, partly thanks to the millions of surveillance cameras that London authorities have installed across the city. In order to fight crimes, video surveillance is also used in commercial locations such as banks, automated teller machines (ATMs), supermarkets, and parking areas to prevent and track criminal activities whereas consumer adoptions of video surveillance also have soared in recent years due to the increasing concern on privacy protection (Limin et al, 2009).

Human tracking is an important part of any automated video surveillance system. It is used to track any previously detected human for the mapping or prediction purpose or simply for behavioural analysis. Tracking of a moving object according Zhang et al (2008) implies in accurately locating object of interest in each frame of a frame sequence. Tracking multiple targets simultaneously raises a further problem of probabilistic data association as explained by Cox (1993) such as which object is which along the frame sequence? This question typically involves matching single objects in consecutive frames based on coherent models of shape, motion and appearance features.

Therefore, the goal of human tracking in this work can be summarized as to successfully and accurately locating same individual human in each frame, while he/she roams in camera's secured area. There are several methods of human tracking used by various researchers such as correspondence technique (Zarka et al, 2008), part matching