

HUMAN BEHAVIOUR  
RECOGNITION,  
IDENTIFICATION,  
AND COMPUTER  
INTERACTION

Edited by

**Othman Omran Khalifa**, B.Sc., M.Sc., Ph.D.,  
International Islamic University Malaysia

**Shihab A. Hameed**, B.Sc., M.Sc., Ph.D.,  
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IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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IIUM Press

Published by:  
IIUM Press  
International Islamic University Malaysia

First Edition, 2011  
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Cataloguing-in-Publication Data      Perpustakaan Negara Malaysia

ISBN: 978-967-418-156-7

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM  
(Malaysian Scholarly Publishing Council)

Printed by :  
**IIUM PRINTING SDN. BHD.**  
No. 1, Jalan Industri Batu Caves 1/3  
Taman Perindustrian Batu Caves  
Batu Caves Centre Point  
68100 Batu Caves  
Selangor Darul Ehsan

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# Chapter 1

## Human Posture Recognition: An Overview

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### 1.1. Introduction

Computer vision, which is a component of the field of artificial intelligence [1], is the study of methods and algorithms that enables machines and computers to "see" and "understand" images or multidimensional data [2]. In this context, the term, "understand", means that some information is being extracted from the image or video data for a particular purpose. The image or video data that is fed into a computer vision system is often a color or grayscale image [3] (obtained from a digital camera) but can also be stereo image (from a stereo camera) [4], video sequence (from a video camera) [5] or a 3D volume (from a tomography device). As a scientific discipline, computer vision aims to implement the theories of computer vision to the modeling of computer vision systems.

Computer vision is also similar to biological vision in that computer vision studies and explores artificial vision systems that are implemented in software and/or hardware whereas in biological vision, the visual perception of humans and animals are studied. Sub-domains of computer vision include scene reconstruction [6], event detection [7], tracking [8], object recognition [9], learning, motion estimation [10], and image restoration [11].

Nowadays, in the field of computer vision and engineering, vision-based methods for human behavioral analysis possess specially important practical applications such as surveillance and security systems, choreography, sports, virtual reality, human-computer interaction, content-based image and video retrieval, automatic scene understanding and other vision-based interfaces. In particular, there has been an incredible growth in the volume of computer vision research geared at understanding human actions and behaviors. These advances ranged from classification of basic low-level activities such as recognizing someone walking or sitting, to the higher level task of recognizing and interpreting the global behavior of several interacting people [12]. Intelligent systems and environments are a very attractive