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.,
International Islamic University Malaysia

Sheroz Khan, B.Sc., M.Sc., Ph.D.,
International Islamic University Malaysia

IIUM PRESS

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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.,
International Islamic University Malaysia

Sheroz Khan, B.Sc., M.Sc., Ph.D.,
International Islamic University Malaysia

IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011

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

CONTENTS

Part- III Human Identification and Computer Interaction

Chapter 14

Introduction to Intelligent Video Surveillance Systems

Othman O. Khalifa[1], Imran Moez Khan[1], Yusof Zaw Zaw[1],and Lai Weng Kin[2]

[1]Department of Electrical and Computer Engineering, Faculty of Engineering

International Islamic University Malaysia, Jalan Gombak, 53100 Kuala Lumpur, Malaysia

electronicluddite@gmail.com, yusof.8k.com@gmail.com, khalifa@iium.edu.my

[2]Center for Advanced Informatics

MIMOS Berhad

Technology Park Malaysia 54000, Kuala Lumpur, Malaysia

lai@mimos.my

14.1 Introduction

Most surveillance systems today provide only a passive form of site monitoring. Extensive video records may be kept to help find the instigator of criminal activities after the crime has been committed but preventive measures usually require human involvement. In addition to this, there is a need for large amounts of data storage to keep up to several terabytes of video streams that may be needed for later analysis. For any sense of real-time monitoring, guards often need to be employed to watch video feeds for hours on end to recognize suspicious, dangerous or potentially harmful situations. In multi-camera scene monitoring systems, this becomes quite infeasible as there can be up to 20 to 50 cameras on average in a large complex such as an airport or Megamall. However, monitoring and storage space are not the only concerns. Even if these costs can be borne, there is the additional problem of reviewing this vast amount of video data after a crime or incident has occurred.

Intelligent video surveillance is a relatively new concept in expert systems which aims to automate video surveillance of scenes by replacing human monitoring and evaluation of video feeds by medium level/high level reasoning and scene analysis [1]. This will save money and storage space otherwise required to monitor and archive video streams from surveillance cameras which may go up to several terabytes of data. However, monitoring and storage space are not the only concerns. Even if these costs can be borne, there is the additional problem of reviewing this vast amount of video data after a crime or incident has occurred. An integrated intelligent video surveillance platform will network with the relevant authorities to speed up response times of emergency services by having automatic, real-time