

# **Computing for Human Services**

**Chief Editor**

**Shihab Ahmed Hameed**

*Electrical and Computer Engineering-IIUM University*

**Editors**

**Othman Omran Khalifa**

*Electrical and Computer Engineering-IIUM University*

**Aisha Hassan Abdullah**

*Electrical and Computer Engineering-IIUM University*



**IIUM Press**

# **Computing for Human Services**

Chief Editor

**Shihab Ahmed Hameed**

*Electrical and Computer Engineering-IIUM University*

Editors

**Othman Omran Khalifa**

*Electrical and Computer Engineering-IIUM University*

**Aisha Hassan Abdullah**

*Electrical and Computer Engineering-IIUM University*



IIUM Press

Published by:  
IIUM Press  
International Islamic University Malaysia

First Edition, 2011  
©IIUM Press, IIUM

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without any prior written permission of the publisher.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

ISBN:978- 967-418-161-1

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

## Book Contents

Chapter No	Chapter Title, Author(s)	Page No
	Book Contents	v
	Preface	ix

### Part I

#### Computing to Serve Educational Aspects

<b>Chapter 1</b>	Status of Higher Education in Developing and Islamic World, <i>Shihab A. Hameed</i>	3
<b>Chapter 2</b>	Planning the Future of Higher Education in Developing and Islamic World, <i>Shihab A. Hameed</i>	13
<b>Chapter 3</b>	Internet Impact on Education, <i>Shihab A. Hameed</i>	21
<b>Chapter 4</b>	Eliminating Internet Weakness in Education, <i>Shihab A. Hameed</i>	29
<b>Chapter 5</b>	Computing Role in Educating Deaf Children, <i>Haidawati Mohamad Nasir, Othman Omran Khalifa, Shihab A. Hameed</i>	37
<b>Chapter 6</b>	Management of Research and Development in Educational Organizations, <i>Rashid A. Saeed, Othman O. Khalifa, Aisha Hassun, Shihab A. Hameed</i>	43
<b>Chapter 7</b>	Computer Implementable Quick Fourier Transform (QFT) for Engineering Educators <i>Abdulfattah A. Aboaba, Shihab A. Hameed, Othman O. Khalifa, Aisha H. Abdalla, Ado Dan-Isa, Jubril D. Jiya., James Katende, Abdulfattah B. Mustapha, &amp; Abdullahi L. Amoo</i>	53
<b>Chapter 8</b>	Virtual-Learning Content Management System Using Problem-Based Learning (PBL), <i>Norul Ashikin Bt Abu Kasim, Teddy Surya Gunawan</i>	63
<b>Chapter 9</b>	Development of Final Year Project Portal for Engineering Program, <i>Teddy Surya Gunawan, Abdul Mutholib, Mira Kartiwi</i>	71

**Part II**  
**Computing to Serve Ethical, Social, and Environmental Aspects**

<b>Chapter 10</b>	Software Engineering and Ethical Values, <i>Shihab A. Hameed</i>	83
<b>Chapter 11</b>	New Model for Software Engineering Ethical Principles <i>Shihab A. Hameed</i>	91
<b>Chapter 12</b>	Hajj and Information Technologies: Analytical Study, <i>Shihab A. Hameed</i>	101
<b>Chapter 13</b>	Framework for Comprehensive Hajj Model with ICT, <i>Shihab A. Hameed</i>	109
<b>Chapter 14</b>	RFID for Hajj Identification Guide Information and Personnel Announcement, <i>Dzul I'zzat Bin Julaihi, Ahmad F. Abdul Rahman, Othman O. Khalifa</i>	121
<b>Chapter 15</b>	Development of Online Application for Muslim Traveler with UML Diagram, <i>Teddy Surya Gunawan, Afif Abul Fattah Che Omar, Shihab A. Hameed, Mira Kartiwi</i>	133
<b>Chapter 16</b>	Computers and Electronic Devices Waste: Fundamental Facts <i>Shihab A. Hameed</i>	139
<b>Chapter 17</b>	Computers and Electronic Devices Waste: Analysis and Solution, <i>Shihab A. Hameed</i>	149
<b>Chapter 18</b>	ICT and Environmental Problem, <i>Shihab A. Hameed</i>	157
<b>Chapter 19</b>	Strategy for Green ICT: An Islamic View, <i>Shihab A. Hameed</i>	165

**Part III**  
**Computing to Serve Healthcare and Medical Aspects**

<b>Chapter 20</b>	Fundamental to Medical Data Centre, <i>Shihab A. Hameed, Waleed A. Badurik</i>	175
<b>Chapter 21</b>	Network Based Telemedicine for Fetal ECG Monitoring, <i>M. I. Ibrahimy, S. M. A. Motakabber</i>	185
<b>Chapter 22</b>	Electronic Patient Medical Record to facilitate Patient Monitoring, <i>Shihab A. Hameed, Shazana Mustafa, Aina Mardhiyah, Vladimer Miho, Aisha Hassan</i>	195

<b>Chapter 23</b>	Developing EPMP to Serve Effective Patient Monitoring Database, <i>Shihab A. Hameed, Shazana Mustafa, Aina Mardhiyah, Vladimer Miho</i>	203
<b>Chapter 24</b>	Interactive Web-Based Model for Medical Emergency, <i>Shihab A. Hameed, Shahina shabnam, Nur hafizah Chek Nuh , Nur Huda Bt Salim</i>	209
<b>Chapter 25</b>	Mobile Web Model to Serve Healthcare, <i>Shihab A. Hameed, Vladimer Miho</i>	221
<b>Chapter 26</b>	SMS to Facilitate Healthcare and Emergency, <i>Shihab A. Hameed, Shahina Shabnam Bt Mohd Sharifudeen, Nur hafizah Chek Nuh , Nur Huda Bt Salim, Aisha Hassan, Othman Khalifa</i>	229

#### **Part IV**

#### **Computing to Serve Security and Privacy Aspects**

<b>Chapter 27</b>	Wireless Technology to Scure Emergency and Guidance, <i>Shihab A. Hameed, B. A. Aliyu</i>	237
<b>Chapter 28</b>	Authentication Enhancement for Medical Data Centers, <i>Shihab A. Hameed, Waleed A. Badurik</i>	245
<b>Chapter 29</b>	Integrated Authentication Model: Face Verification, <i>Shihab A. Hameed, Waleed A. Badurik</i>	255
<b>Chapter 30</b>	Confidentiality to Service Medical Emergency Model, <i>Shihab A. Hameed, Habib Yuchoh, Wajdi F. Al-Khateeb</i>	261
<b>Chapter 31</b>	Fundamental to Password based security <i>Shihab A. Hameed, Ahmed Fathi Zainazlan, Herman Sazwan nor rahim</i>	269
<b>Chapter 32</b>	Graphical Password Security Model, <i>Shihab A. Hameed, Ahmed Fathi Zainazlan, Herman Sazwan nor rahim</i>	277
<b>Chapter 33</b>	Automobile Monitoring and Tracking, <i>Shihab A. Hameed, Othman Khalifa, Aisha Hassan</i>	287

**Part V**  
**Computing to Serve Industrial and other Aspects**

<b>Chapter 34</b>	Speech to Text to Sign Language, <i>Khalid Khalil Kamil, Othman O. Khalifa</i>	297
<b>Chapter 35</b>	Speech to Sign Language Interpreter System (SSLIS), <i>Khalid Khalil El-Darymli, Othman O. Khalifa and Hassan Enemosah</i>	313
<b>Chapter 36</b>	Speech Codec for a Voice over IP (VoIP) Systems, <i>Othman O. Khalifa, Shihab A. Hameed</i>	323
<b>Chapter 37</b>	Reconfigurable Platform in Embedded System, <i>Amelia Wong Azman</i>	329
<b>Chapter 38</b>	Smart Grid Communication Layer, <i>Norulhuda Lokeman, Norizan Mohd Hassan, Sigit PW Jarot</i>	337

## Chapter 19

### Strategy for Green ICT: An Islamic View

Shihab A. Hameed

Faculty of Engineering, International Islamic University Malaysia-IIUM

E-mail: [shihab@iium.edu.my](mailto:shihab@iium.edu.my)

#### 19.1. Introduction

Global environmental problems are affecting many countries' energy and industrial policies. Rapid increasing of ICT usage means more energy consumption and environmental problems. Estimated ICT consumption of energy will be about 15% of the total consumption worldwide in 2020. Therefore, many countries are establishing Green ICT policies which increase energy efficiency due to correspondence climate change. Governments especially in developing and Islamic countries need to adopt new strategic policies for efficient energy use in ICT. This study presents the current environmental problems related to green ICT and the efforts to solve it. Several studies have warning from the current energy consumption paradigm, based on newly changed ICT practices. This study provides guidelines for decision makers and ICT professionals to enhance their work toward green ICT and eliminating environmental problems. There are more than one and half billions of Muslims in the world; so Islamic viewpoint on environment and its protection is considered. It offers comprehensive, stable, and fair viewpoint that is based on main Islamic sources; Quran and Sunnah. Hundreds of Quranic verses and prophet Hadiths clarify (directly or indirectly) the right manner in dealing and protection of environment resources. This paper proposes a framework for strategy and policy statements of green ICT based on Islamic perspective to serve the world especially developing and Islamic countries.

#### 19.2. The Concept of Environment from Islamic Viewpoint

Islam is the last religion revealed by Allah (God) the Almighty; He mentioned in Qur'an [1] "This day, I have perfected your religion for you, completed my favor upon you, and have chosen for you Islam as religion" [Quran 5:3]. Islam is basically based on two sources: The Holy Qur'an and the Sunnah of Prophet Mohammed (SAAW). Sunnah is mainly defined by Muslim scholars as: "all what prophet Mohammed (SAAW) says, acts, or agreed on". People