

# Contents

|                    |      |
|--------------------|------|
| Preface.....       | ix   |
| Editors .....      | xiii |
| Contributors ..... | xv   |

## SECTION I INFORMATION TECHNOLOGY

|                  |                                                                                                                                                     |     |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Chapter 1</b> | Computer Vision for Object Recognition and Tracking Based on Raspberry Pi .....                                                                     | 3   |
|                  | <i>Ali A. Abed and Sara A. Rahman</i>                                                                                                               |     |
| <b>Chapter 2</b> | Modeling of the Teaching–Learning Process in E-Learning .....                                                                                       | 15  |
|                  | <i>Mustapha Bassiri, Mohamed Radid, and Said Belaaouad</i>                                                                                          |     |
| <b>Chapter 3</b> | Solving the Problems of Linguistically Diverse First-Year University Students Using Digital Learning.....                                           | 41  |
|                  | <i>Dace Ratniece and Sarma Cakula</i>                                                                                                               |     |
| <b>Chapter 4</b> | Moving Enterprise Architecture from Professional Certificates to Academic Credentials .....                                                         | 49  |
|                  | <i>Fekry Fouad</i>                                                                                                                                  |     |
| <b>Chapter 5</b> | Automatic Identification and Data Capture Techniques by Radio-Frequency Identification (RFID) Tags: Reader Authentication and Ethical Aspects ..... | 63  |
|                  | <i>H. Saadi, R. Touhami, and M. C. E. Yagoub</i>                                                                                                    |     |
| <b>Chapter 6</b> | Artificial Intelligence in E-Learning .....                                                                                                         | 77  |
|                  | <i>Hachem Alaoui Harouni, Elkaber Hachem, and Cherif Ziti</i>                                                                                       |     |
| <b>Chapter 7</b> | Wireless Multimedia Sensor Networks: Cross-Layer Approach Protocols .....                                                                           | 93  |
|                  | <i>Manal Abdullah and Ablah AlAmri</i>                                                                                                              |     |
| <b>Chapter 8</b> | Survey of E-Learning Standards.....                                                                                                                 | 109 |
|                  | <i>Manal Abdullah and Nashwa AbdelAziz Ali</i>                                                                                                      |     |
| <b>Chapter 9</b> | A Classification Perspective of Big Data Mining .....                                                                                               | 123 |
|                  | <i>Manal Abdullah and Nojod M. Alotaibi</i>                                                                                                         |     |

|                   |                                                                                                             |     |
|-------------------|-------------------------------------------------------------------------------------------------------------|-----|
| <b>Chapter 10</b> | Streaming Data Classification in Clustered Wireless Sensor Networks .....                                   | 137 |
|                   | <i>Manal Abdullah and Yassmeen Alghamdi</i>                                                                 |     |
| <b>Chapter 11</b> | Video Codecs Assessment over IPTV Using OPNET .....                                                         | 153 |
|                   | <i>Eman S. Sabry, Rabie A. Ramadan, M. H. Abd El-Azeem, and Hussien ElGouz</i>                              |     |
| <b>Chapter 12</b> | Brain Storm Optimization (BSO) for Coverage and Connectivity Problems<br>in Wireless Sensor Networks .....  | 165 |
|                   | <i>Rabie A. Ramadan and A. Y. Khedr</i>                                                                     |     |
| <b>Chapter 13</b> | An Exploratory Evaluation of the Awareness of E-Government<br>Services among Citizens in Saudi Arabia ..... | 177 |
|                   | <i>S. Q. Al-Khalidi Al-Maliki</i>                                                                           |     |
| <b>Chapter 14</b> | An Internet of Things (IoT) Course for a Computer Science Graduate Program.....                             | 187 |
|                   | <i>Xing Liu and Orlando Baiocchi</i>                                                                        |     |
| <b>Chapter 15</b> | Modeling Guidelines of FreeRTOS in Event-B .....                                                            | 195 |
|                   | <i>Eman H. Alkhamash, Michael J. Butler, and Corina Cristea</i>                                             |     |
| <b>Chapter 16</b> | Generation of Use Case UML Diagram from User Requirement<br>Specifications.....                             | 217 |
|                   | <i>Wahiba Ben Abdessalem and Eman H. Alkhamash</i>                                                          |     |

## SECTION II COMMUNICATION SYSTEMS

|                   |                                                                                                                                            |     |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Chapter 17</b> | Design and Simulation of Adaptive Cognitive Radio Based on Software-<br>Defined Radio (SDR) Using Higher-Order Moments and Cumulants ..... | 229 |
|                   | <i>Ahmed Abdulridha Thabit and Hadi T. Ziboon</i>                                                                                          |     |
| <b>Chapter 18</b> | Effect of Black Hole Attacks on Delay-Tolerant Networks.....                                                                               | 243 |
|                   | <i>Alaa Hassan and Wafa Ahmed El Gali</i>                                                                                                  |     |
| <b>Chapter 19</b> | Proposed Adaptive Neural-Fuzzy Inference System (ANFIS) Identifier<br>for M-ary Frequency Shift Keying (FSK) Signals with Low SNR.....     | 259 |
|                   | <i>Hadi A. Hamed, Sattar B. Sadkhan, and Ashwaq Q. Hameed</i>                                                                              |     |
| <b>Chapter 20</b> | New Image Scrambling Algorithm Depending on Image<br>Dimension Transformation Using Chaotic Flow Sequences.....                            | 269 |
|                   | <i>Hadi T. Ziboon, Hikmat N. Abdullah, and Atheer J. Mansor</i>                                                                            |     |

|                   |                                                                                                                         |     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Chapter 21</b> | Efficient Two-Stage Sensing Method for Improving Energy Consumption in Cognitive Radio Networks .....                   | 281 |
|                   | <i>Hikmat N. Abdullah and Hadeel S. Abed</i>                                                                            |     |
| <b>Chapter 22</b> | Current Status of Information Security Based on Hybrid Crypto and Stego Systems .....                                   | 297 |
|                   | <i>Rana Saad Mohammed and Sattar B. Sadkhan</i>                                                                         |     |
| <b>Chapter 23</b> | The Status of Research Trends in Text Emotion Detection .....                                                           | 309 |
|                   | <i>Rusul Sattar B. Sadkhan and Sattar B. Sadkhan</i>                                                                    |     |
| <b>Chapter 24</b> | Reaction Automata Direct Graph (RADG) Design on Elliptic Curve Cryptography .....                                       | 321 |
|                   | <i>Salah A. Albermany and Ali Hasan Alwan</i>                                                                           |     |
| <b>Chapter 25</b> | A Performance Comparison of Adaptive LMS, NLMS, RLS, and AFP Algorithms for Wireless Blind Channel Identification ..... | 333 |
|                   | <i>Sami Hasan and Anas Fadhil</i>                                                                                       |     |
| <b>Chapter 26</b> | Design of New Algorithms to Analyze RC4 Cipher Based on Its Biases .....                                                | 347 |
|                   | <i>Ali M. Sagheer and Sura M. Searan</i>                                                                                |     |
| <b>Chapter 27</b> | Extracting Implicit Feedback from Users' GPS Tracks Dataset: A New Developed Method for Recommender Systems .....       | 363 |
|                   | <i>Tawfiq A. Alasadi and Wadhah R. Baiee</i>                                                                            |     |

### SECTION III MANAGEMENT

|                   |                                                                                                                                         |     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Chapter 28</b> | Management through Opportunities as an Unconventional Solution in the Theory of Strategic Management .....                              | 377 |
|                   | <i>Anna Brzozowska and Katarzyna Szymczyk</i>                                                                                           |     |
| <b>Chapter 29</b> | Concept of Supply Chain Management in the Context of Shaping Public Value .....                                                         | 389 |
|                   | <i>Dagmara Bubel</i>                                                                                                                    |     |
| <b>Chapter 30</b> | Current State of Information and Communication Provision of Ukraine and Spread of Information Technologies in Agricultural Sector ..... | 403 |
|                   | <i>Antonina Kalinichenko and Oleksandr Chekhlatyi</i>                                                                                   |     |
| <b>Chapter 31</b> | Selected Issues of Management of Green Logistics in Transport Sector .....                                                              | 413 |
|                   | <i>Marta Kadłubek</i>                                                                                                                   |     |



|                    |                                                                                                                                         |     |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Chapter 32</b>  | HR Analytics as a Support of High- and Mid-Level Managers<br>in Contemporary Enterprises in Eastern Poland.....                         | 425 |
|                    | <i>Monika Wawer and Piotr Muryjas</i>                                                                                                   |     |
| <b>Chapter 33</b>  | Effects and Impact of Playing Computer Games on Gamers .....                                                                            | 439 |
|                    | <i>W. Chmielarz and O. Szumski</i>                                                                                                      |     |
| <b>Chapter 34</b>  | ICT Drivers of Intelligent Enterprises.....                                                                                             | 455 |
|                    | <i>Monika Łobaziewicz</i>                                                                                                               |     |
| <b>Chapter 35</b>  | MVDR Beamformer Model for Array Response Vector Mismatch Reduction .....                                                                | 467 |
|                    | <i>Suhail Najm Shahab, Ayib Rosdi Zainun, Essa Ibrahim Essa, Nurul Hazlina<br/>Noordin, Izzeldin Ibrahim Mohamed, and Omar Khaldoun</i> |     |
| <b>Index</b> ..... |                                                                                                                                         | 481 |