Contents

1 Fingerprint Quality Assessment: Matching Performance and Image Quality .......................................................... 1
Zhigang Yao, Jean-Marie Le Bars, Christophe Charrier, and Christophe Rosenberger

2 A Novel Perspective on Hand Vein Patterns for Biometric Recognition: Problems, Challenges, and Implementations ............ 21
Septimiu Crisan

3 Improving Biometric Identification Performance Using PCANet Deep Learning and Multispectral Palmprint ................. 51
Abdallah Meraoumia, Farid Kadri, Hakim Bendjenna, Salim Chitroub, and Ahmed Bouridane

4 Biometric Acoustic Ear Recognition ......................................................... 71
Mohammad Derawi, Patrick Bours and Ray Chen

5 Eye Blinking EOG Signals as Biometrics ............................................ 121
Sherif N. Abbas and M. Abo-Zahhad

6 Improved Model-Free Gait Recognition Based on Human Body Part ............................................................ 141
Imad Rida, Noor Al Maadeed, Gian Luca Marcialis, Ahmed Bouridane, Romain Herault, and Gilles Gasso

7 Smartphone User Authentication Using Touch Dynamics in the Big Data Era: Challenges and Opportunities ..................... 163
Lijun Jiang and Weizhi Meng

8 Enhanced Biometric Security and Privacy Using ECG on the Zynq SoC ............................................................ 179
Amine Ait Si Ali, Xiaojun Zhai, Abbes Amira, Faycal Bensaali, and Naeem Ramzan
9 Offline Biometric Signature Verification Using Geometric and Colour Features ........................................................ 203
Abdelaali Hassaine, Somaya Al Maadeed, and Ahmed Bouridane

10 Non-cooperative and Occluded Person Identification Using Periocular Region with Visible, Infra-Red, and Hyperspectral Imaging ................................................... 223
Muhammad Uzair, Arif Mahmood, and Somaya Ali Al-Maadeed

11 Robust Face Recognition Using Kernel Collaborative Representation and Multi-scale Local Binary Patterns ................ 253
Muhammad Khurram Shaikh, Muhammad Atif Tahir, and Ahmed Bouridane

12 Recognition of 3D Faces with Missing Parts Based on SIFT and LBP Methods .......................................................... 273
Narimen Saad and NourEddine Djedi

13 Face Anti-spoofing in Biometric Systems ................................ 299
Zinelabidine Boulkenafet, Zahid Akhtar, Xiaoyi Feng, and Abdenour Hadid

14 Biometric Template Protection: A Systematic Literature Review of Approaches and Modalities .......................... 323
Mulagala Sandhya and Munaga V.N.K. Prasad

15 A Survey on Cyber Security Evolution and Threats: Biometric Authentication Solutions ........................................ 371
Leila Benarous, Benamar Kadri, and Ahmed Bouridane

16 Data Protection and Biometric Data: European Union Legislation ............................................. 413
Pedro Miguel Freitas, Teresa Coelho Moreira, and Francisco Andrade

Index ........................................................................................................ 423
Biometric Security and Privacy
Opportunities & Challenges in The Big Data Era
Jiang, R.; Al-maadeed, S.; Bouridane, A.; Crookes, D.; Beghdadi, A. (Eds.)
2017, VIII, 424 p. 194 illus., 146 illus. in color., Hardcover
ISBN: 978-3-319-47300-0