## Contents

### Gait and Behaviour Analysis

On Semantic Soft-Biometric Labels ........................................... 3  
*Sina Samangooei and Mark S. Nixon*

Human Classification Using Gait Features .......................... 16  
*Elena Gianaria, Marco Grangetto, Maurizio Lucenteforte,  
and Nello Balossino*

Using Mutual Information for Multi-Anchor Tracking of Human Beings . . . 28  
*Silvio Barra, Maria De Marsico, Virginio Cantoni, and Daniel Riccio*

A Framework for Fast Low-Power Multi-Sensor 3D Scene Capture  
and Reconstruction ............................................................. 40  
*Aleksandra Chuchvara, Mihail Georgiev, and Atanas Gotchev*

### Iris Analysis

Iris Detection Through Watershed Segmentation ....................... 57  
*Alessio Ferone, Maria Frucci, Alfredo Petrosino,  
and Gabriella Sanniti di Baja*

Fast Iris Recognition on Smartphone by Means of Spatial Histograms . . . 66  
*Andrea F. Abate, Michele Nappi, Fabio Narducci, and Stefano Ricciardi*

A Contourlet Transform Based for Features Fusion in Retina  
and Iris Multimodal Biometric System .................................... 75  
*Morteza Modarresi and Iman Sheikh Oveisi*

### Speech Recognition

From Speaker Recognition to Forensic Speaker Recognition .............. 93  
*Andrzej Drygajlo*

Noisy Speech Endpoint Detection Using Robust Feature ............... 105  
*Atanas Ouzounov*

### 3D Ear Recognition

Appearance-Based 3D Object Approach to Human Ears Recognition . . . 121  
*Dimo T. Dimov and Virginio Cantoni*
3D Ear Analysis by an EGI Representation ............................................. 136
          Virginio Cantoni, Dimo T. Dimov, and Atanas Nikolov

Face and Facial Attributes Analysis

Biometrics in Forensic Science: Challenges, Lessons and New Technologies . . . 153
          Massimo Tistarelli, Enrico Grosso, and Didier Meuwly

Facial Expression Classification Using Supervised Descent Method Combined
with PCA and SVM ................................................................. 165
          Agata Manolova, Nikolay Neshov, Stanislav Panev, and Krasimir Tonchev

Human Gaze Tracking with An Active Multi-Camera System ...................... 176
          Agata Manolova, Stanislav Panev, and Krasimir Tonchev

Handwriting and Signature Recognition

Effect of Handwriting Changes on the Possibilities for Computerized
Handwriting Examination ......................................................... 191
          Dobrin Nestorov and Detelina Georgieva

Neural Network and kNN Classifiers for On-Line Signature Verification . . . 198
          Desislava Boyadzieva and Georgi Gluhchev

Multimodal and Soft Biometrics

People Identification and Tracking Through Fusion of Facial
and Gait Features ................................................................. 209
          Yu Guan, Xingjie Wei, Chang-Tsun Li, and Yosi Keller

Pupil Size as a Biometric Trait .................................................. 222
          Nahumi Nugrahaningsih and Marco Porta

Analysing Soft Clothing Biometrics for Retrieval .................................. 234
          Emad Sami Jaha and Mark S. Nixon

On the Application of Biometric Techniques for Locating
Damaged Artworks ................................................................. 246
          Andreas Lanitis, Nicolas Tsapatsoulis, and Anastasios Maronidis

Multifractal Analysis of Posturograms of Young and Elderly Persons ........... 258
          Peter Dojnow

Author Index ................................................................. 265
Biometric Authentication
First International Workshop, BIOMET 2014, Sofia, Bulgaria, June 23–24, 2014. Revised Selected Papers
Cantoni, V.; Dimov, D.; Tistarelli, M. (Eds.)
2014, X, 265 p. 124 illus., Softcover
ISBN: 978-3-319-13385-0