Contents

Part I  Deep Learning for Face Biometrics

1  The Functional Neuroanatomy of Face Processing: Insights from Neuroimaging and Implications for Deep Learning .......................... 3
   Kalanit Grill-Spector, Kendrick Kay and Kevin S. Weiner

2  Real-Time Face Identification via Multi-convolutional Neural Network and Boosted Hashing Forest ................................. 33
   Yury Vizilter, Vladimir Gorbatevich, Andrey Vorotnikov
   and Nikita Kostromov

3  CMS-RCNN: Contextual Multi-Scale Region-Based CNN for Unconstrained Face Detection ........................................ 57
   Chenchen Zhu, Yutong Zheng, Khoa Luu and Marios Savvides

Part II  Deep Learning for Fingerprint, Fingervein and Iris Recognition

4  Latent Fingerprint Image Segmentation Using Deep Neural Network ................................................................. 83
   Jude Ezeobiejesi and Bir Bhanu

5  Finger Vein Identification Using Convolutional Neural Network and Supervised Discrete Hashing .................................... 109
   Cihui Xie and Ajay Kumar

6  Iris Segmentation Using Fully Convolutional Encoder–Decoder Networks ................................................................. 133
   Ehsaneddin Jalilian and Andreas Uhl
Part III  Deep Learning for Soft Biometrics

7  Two-Stream CNNs for Gesture-Based Verification and Identification: Learning User Style .......................... 159
Jonathan Wu, Jiawei Chen, Prakash Ishwar and Janusz Konrad

8  DeepGender2: A Generative Approach Toward Occlusion and Low-Resolution Robust Facial Gender Classification via Progressively Trained Attention Shift Convolutional Neural Networks (PTAS-CNN) and Deep Convolutional Generative Adversarial Networks (DCGAN) ........................................ 183
Felix Juefei-Xu, Eshan Verma and Marios Savvides

9  Gender Classification from NIR Iris Images Using Deep Learning ............................................... 219
Juan Tapia and Carlos Aravena

10 Deep Learning for Tattoo Recognition ................................. 241
Xing Di and Vishal M. Patel

Part IV  Deep Learning for Biometrics Security and Protection

11 Learning Representations for Cryptographic Hash Based Face Template Protection .......................... 259
Rohit Kumar Pandey, Yingbo Zhou, Bhargava Urala Kota and Venu Govindaraju

12 Deep Triplet Embedding Representations for Liveness Detection ................................. 287
Federico Pala and Bir Bhanu

Index ........................................................................ 309
Deep Learning for Biometrics
Bhanu, B.; Kumar, A. (Eds.)
2017, XXXI, 312 p. 117 illus., 96 illus. in color.,
Hardcover
ISBN: 978-3-319-61656-8