Contents

1 Introduction 1
Stan Z. Li and Anil K. Jain

Part I Face Image Modeling and Representation

2 Face Recognition in Subspaces 19
Gregory Shakhnarovich and Baback Moghaddam

3 Face Subspace Learning 51
Wei Bian and Dacheng Tao

4 Local Representation of Facial Features 79
Joni-Kristian Kämäräinen, Abdenour Hadid, and Matti Pietikäinen

5 Face Alignment Models 109
Phil Tresadern, Tim Cootes, Chris Taylor, and Vladimir Petrović

6 Morphable Models of Faces 137
Reinhard Knothe, Brian Amberg, Sami Romdhani, Volker Blanz, and Thomas Vetter

7 Illumination Modeling for Face Recognition 169
Ronen Basri and David Jacobs

8 Face Recognition Across Pose and Illumination 197
Ralph Gross, Simon Baker, Iain Matthews, and Takeo Kanade

9 Skin Color in Face Analysis 223
J. Birgitta Martinkauppi, Abdenour Hadid, and Matti Pietikäinen

10 Face Aging Modeling 251
Unsang Park and Anil K. Jain

Part II Face Recognition Techniques

11 Face Detection 277
Stan Z. Li and Jianxin Wu

12 Facial Landmark Localization 305
Xiaoqing Ding and Liting Wang

13 Face Tracking and Recognition in Video 323
Rama Chellappa, Ming Du, Pavan Turaga, and Shaohua Kevin Zhou

14 Face Recognition at a Distance 353
Frederick W. Wheeler, Xiaoming Liu, and Peter H. Tu

15 Face Recognition Using Near Infrared Images 383
Stan Z. Li and Dong Yi

16 Multispectral Face Imaging and Analysis 401
Andreas Koschan, Yi Yao, Hong Chang, and Mongi Abidi

17 Face Recognition Using 3D Images 429
I.A. Kakadiaris, G. Passalis, G. Toderici, E. Efraty, P. Perakis, D. Chu, S. Shah, and T. Theoharis

18 Facial Action Tracking 461
Jörgen Ahlberg and Igor S. Pandzic

19 Facial Expression Recognition 487
Yingli Tian, Takeo Kanade, and Jeffrey F. Cohn

20 Face Synthesis 521
Yang Wang, Zicheng Liu, and Baining Guo

Part III Performance Evaluation: Machines and Humans

21 Evaluation Methods in Face Recognition 551
P. Jonathon Phillips, Patrick Grother, and Ross Micheals

22 Dynamic Aspects of Face Processing in Humans 575
Heinrich H. Bülthoff, Douglas W. Cunningham, and Christian Wallraven

23 Face Recognition by Humans and Machines 597
Alice J. O'Toole

Part IV Face Recognition Applications

24 Face Recognition Applications 617
Thomas Huang, Ziyou Xiong, and Zhenqiu Zhang

25 Large Scale Database Search 639
Michael Brauckmann and Christoph Busch

26 Face Recognition in Forensic Science 655
Nicole A. Spaun

27 Privacy Protection and Face Recognition 671
Andrew W. Senior and Sharathchandra Pankanti

Index 693

http://www.springer.com/978-0-85729-931-4

Handbook of Face Recognition
Li, S.Z.; Jain, A. (Eds.)
2011, XV, 699 p. 293 illus., 190 illus. in color.,
Hardcover
ISBN: 978-0-85729-931-4