

Preface

Facial images convey many important human characteristics, such as identity, gender, expression, age, and ethnicity. Over the past two decades, a large number of face analysis problems have been investigated in the computer vision and pattern recognition community. Representative examples include face recognition, facial expression recognition, facial age estimation, gender classification and ethnicity recognition. Compared with these face analysis tasks, facial kinship verification is a relatively new research topic in face analysis and only some attempts have been made over the past few years. However, this new research topic has several potential applications such as family album organization, image annotation, social media analysis, and missing children/parents search. Hence, it is desirable to write a book to summarize the state-of-the-arts of research findings in this direction and provide some useful suggestions to researchers who are working in this field.

This book is specialized in facial kinship verification, covering from the classical feature representation, metric learning methods to the state-of-the-art facial kinship verification methods with feature learning and metric learning techniques. It mainly comprises three parts. The first part focuses on the feature learning methods, which are recently developed for facial kinship verification. The second part presents several metric learning methods for facial kinship verification, including both conventional methods and some recently proposed methods. The third part discusses some recent studies on video-based facial kinship verification. As feature learning and metric learning methods presented in this book can also be easily applied to other face analysis tasks, e.g., face recognition, facial expression recognition, facial age estimation, and gender classification, it will be beneficial for researchers and practitioners who are searching for solutions for their specific face analysis applications or even pattern recognition problems. The book is also suitable for graduates, researchers, and practitioners interested in computer vision and machine learning both as a learning text and as a reference book.

I thank Prof. Marcelo H. Ang Jr. and Prof. Aun Neow Poo in the National University of Singapore for bringing me to the world of computer vision and robotics, and for their valuable suggestions on my research and career. I also thank the publication team of SpringerBriefs for its assistance.

The writing of this book is supported in part by the National Natural Science Foundation of China (Grant No. 61603048, 61672306), the Beijing Natural Science Foundation (Grant No. 4174101), the Fundamental Research Funds for the Central Universities at Beijing University of Posts and Telecommunications (Grant No. 2017RC21) and the Thousand Talents Program for Distinguished Young Scholars.

Beijing, China
February 2017

Haibin Yan

Facial Kinship Verification

A Machine Learning Approach

Yan, H.; Lu, J.

2017, X, 82 p. 33 illus., 29 illus. in color., Softcover

ISBN: 978-981-10-4483-0