

Audio And Video Based Biometric Person Authentication 4th International Conference Avbpa 2003 Guildford Uk June 9 11 2003 Proceedings Lecture Notes In Computer Science

"This book introduces the readers to the various aspects of visual speech recognitions, including lip segmentation from video sequence, lip feature extraction and modeling, feature fusion and classifier design for visual speech recognition and speaker verification" résumé de l'éditeur.

The tremendous world-wide interest in intelligent biometric techniques in fingerprint and face recognition is fueled by the myriad of potential applications, including banking and security systems, and limited only by the imaginations of scientists and engineers. This growing interest poses new challenges to the fields of expert systems, neural networks, fuzzy systems, and evolutionary computing, which offer the advantages of learning abilities and human-like behavior. Biometric Techniques in Fingerprint and Face Recognition presents a thorough treatment of established and emerging applications and techniques relevant to this field so rich with opportunity.

This book presents the state-of-the-art techniques and recent research progress on Ear Biometrics. Among the various physiological traits, the reasons for the ear to gain much attention in recent years are many folds. It has been found to be a reliable biometrics for human verification and identification. Ears are remarkably consistent and unlike face, it does not change shape with different expressions or age, and remain fixed in the middle of the side of the head against a predictable background. The book contains figures, tables and plots to illustrate the techniques in an easy and lucid manner. The book also provides an extensive literature on the subject, where readers have the benefit of receiving all the relevant material at one place in a very comprehensive manner. This book caters students, academics, researchers, practitioners who are interested in the field of Ear Biometrics and its applications in face recognition and security.

Biometric authentication has been widely used for access control and security systems over the past few years. The purpose of this book is to provide the readers with life cycle of different biometric authentication systems from their design and development to qualification and final application. The major systems discussed in this book include fingerprint identification, face recognition, iris segmentation and classification, signature verification and other miscellaneous systems which describe management policies of biometrics, reliability measures, pressure based typing and signature verification, bio-chemical systems and behavioral characteristics. In summary, this book provides the students and the researchers with different approaches to develop biometric authentication systems and at the same time includes state-of-the-art approaches in their design and development. The approaches have been thoroughly tested on standard databases and in real world applications.

Biometrics, the science of using physical traits to identify individuals, is playing an increasing role in our security-conscious society and across the globe. Biometric authentication, or bioauthentication, systems are being used to secure everything from amusement parks to bank accounts to military installations. Yet developments in this field have not been matched by an equivalent improvement in the statistical methods for evaluating these systems. Compensating for this need, this unique text/reference provides a basic statistical methodology for practitioners and testers of bioauthentication devices, supplying a set of rigorous statistical methods for evaluating biometric authentication systems. This framework of methods can be extended and generalized for a wide range of applications and tests. This is the first single resource on statistical methods for estimation and comparison of the performance of biometric authentication systems. The book focuses on six common performance metrics: for each metric, statistical methods are derived for a single system that incorporates confidence intervals, hypothesis tests, sample size calculations, power calculations and prediction intervals. These methods are also extended to allow for the statistical comparison and evaluation of multiple systems for both independent and paired data. Topics and features: * Provides a statistical methodology for the most common biometric performance metrics: failure to enroll (FTE), failure to acquire (FTA), false non-match rate (FNMR), false match rate (FMR), and receiver operating characteristic (ROC) curves * Presents methods for the comparison of two or more biometric performance metrics * Introduces a new bootstrap methodology for FMR and ROC curve estimation * Supplies more than 120 examples, using publicly available biometric data where possible * Discusses the addition of prediction intervals to the bioauthentication statistical toolset * Describes sample-size and power calculations for FTE, FTA, FNMR and FMR Researchers, managers and decisions makers needing to compare biometric systems across a variety of metrics will find within this reference an invaluable set of statistical tools. Written for an upper-level undergraduate or master's level audience with a quantitative background, readers are also expected to have an understanding of the topics in a typical undergraduate statistics course. Dr. Michael E. Schuckers is Associate Professor of Statistics at St. Lawrence University, Canton, NY, and a member of the Center for Identification Technology Research.

The refereed proceedings of the 4th International Conference on Audio-and Video-Based Biometric Person Authentication, AVBPA 2003, held in Guildford, UK, in June 2003. The 39 revised full plenary papers and 72 revised full poster papers were carefully reviewed and selected for presentation. There are topical sections on face; speech; fingerprint; image, video processing, and tracking; general issues; handwriting, signature, and palm; gait; and fusion. This book constitutes the refereed proceedings of the First International Conference on Biometric Authentication, ICBA 2004, held in Hong Kong, China in July 2004. The 104 revised full papers presented were carefully reviewed and selected from 157 submissions; also included are summaries of 3 biometric competitions on fingerprint verification, face authentication, and signature verification. The papers are organized in topical sections on face, fingerprint, iris, signature, speech, biometric fusion and risk analysis, and other biometric issues.

This book constitutes of the major results of the EU COST (European Cooperation in the field of Scientific and Technical Research) Action 277: NSP, Nonlinear Speech Processing, running from April 2001 to June 2005. Coverage includes such areas

as speech analysis for speech synthesis, speech recognition, speech-non speech discrimination and voice quality assessment, speech enhancement, and emotional state detection.

This book constitutes the refereed proceedings of the 5th Chinese Conference on Biometric Recognition, SINOBIO METRICS 2004, held in Guanzhou, China in December 2004. The 60 revised full papers presented together with 14 invited papers by internationally leading researchers were carefully reviewed and selected from 140 submissions. The papers are organized in topical sections on biometrics, best performing biometric engines, face localization, pose estimation, face recognition, 3D based methods, subspace and discriminant analysis, systems and applications, fingerprint preprocessing and minutiae extraction, fingerprint recognition and matching, fingerprint classification, iris recognition, speaker recognition, and other biometric primitives. Welcome to the Third International Conference on Information Security and Assurance (ISA 2009). ISA 2009 was the most comprehensive conference focused on the various aspects of advances in information security and assurance. The concept of security and assurance is emerging rapidly as an exciting new paradigm to provide reliable and safe life services. Our conference provides a chance for academic and industry professionals to discuss recent progress in the area of communication and networking including modeling, simulation and novel applications associated with the utilization and acceptance of computing devices and systems. ISA 2009 was a successor of the First International Workshop on Information Assurance in Networks (IAN 2007, Jeju-island, Korea, December, 2007), and the Second International Conference on Information Security and Assurance (ISA 2008, Busan, Korea, April 2008). The goal of this conference is to bring together researchers from academia and industry as well as practitioners to share ideas, problems and solutions relating to the multifaceted aspects of information technology. ISA 2009 contained research papers submitted by researchers from all over the world. In order to guarantee high-quality proceedings, we put extensive effort into reviewing the papers. All submissions were peer reviewed by at least three Program Committee members as well as external reviewers. As the quality of the submissions was quite high, it was extremely difficult to select the papers for oral presentation and publication in the proceedings of the conference.

This book constitutes the refereed proceedings of the International Conference on Biometrics, ICB 2006, held in Hong Kong, China in January 2006. The book includes 104 revised full papers covering such areas of biometrics as the face, fingerprint, iris, speech and signature, biometric fusion and performance evaluation, gait, keystrokes, and more. In addition the results of the Face Authentication Competition (FAC 2006) are also announced in this volume.

This interdisciplinary volume presents a detailed overview of the latest advances and challenges remaining in the field of adaptive biometric systems. A broad range of techniques are provided from an international selection of pre-eminent authorities, collected together under a unified taxonomy and designed to be applicable to any pattern recognition system. Features: presents a thorough introduction to the concept of adaptive biometric systems; reviews systems for adaptive face recognition that perform self-updating of facial models using operational (unlabeled) data; describes a novel semi-supervised training strategy known as fusion-based co-training; examines the characterization and recognition of human gestures in videos; discusses a selection of learning techniques that can be applied to build an adaptive biometric system; investigates procedures for handling temporal variance in facial biometrics due to aging; proposes a score-level fusion scheme for an adaptive multimodal biometric system.

Details multimodal biometrics and its exceptional utility for increasingly reliable human recognition systems. Reveals the substantial advantages of multimodal systems over conventional identification methods.

The development of technologies for the identification of individuals has driven the interest and curiosity of many people. Spearheaded and inspired by the Bertillon coding system for the classification of humans based on physical measurements, scientists and engineers have been trying to invent new devices and classification systems to capture the human identity from its body measurements. One of the main limitations of the precursors of today's biometrics, which is still present in the vast majority of the existing biometric systems, has been the need to keep the device in close contact with the subject to capture the biometric measurements. This clearly limits the applicability and convenience of biometric systems. This book presents an important step in addressing this limitation by describing a number of methodologies to capture meaningful biometric information from a distance. Most materials covered in this book have been presented at the International Summer School on Biometrics which is held every year in Alghero, Italy and which has become a flagship activity of the IAPR Technical Committee on Biometrics (IAPR TC4). The last four chapters of the book are derived from some of the best presentations by the participating students of the school. The educational value of this book is also highlighted by the number of proposed exercises and questions which will help the reader to better understand the proposed topics.

Biometric Solutions for Authentication in an E-World provides a collection of sixteen chapters containing tutorial articles and new material in a unified manner. This includes the basic concepts, theories, and characteristic features of integrating/formulating different facets of biometric solutions for authentication, with recent developments and significant applications in an E-world. This book provides the reader with a basic concept of biometrics, an in-depth discussion exploring biometric technologies in various applications in an E-world. It also includes a detailed description of typical biometric-based security systems and up-to-date coverage of how these issues are developed. Experts from all over the world demonstrate the various ways this integration can be made to efficiently design methodologies, algorithms, architectures, and implementations for biometric-based applications in an E-world.

Biometrics is a rapidly evolving field with applications ranging from accessing one's computer to gaining entry into a country. The deployment of large-scale biometric systems in both commercial and government applications has increased public awareness of this technology. Recent years have seen significant growth in biometric research resulting in the development of innovative sensors, new algorithms, enhanced test methodologies and novel applications. This book addresses this void by inviting some of the prominent researchers in Biometrics to contribute chapters describing the fundamentals as well as the latest innovations in their respective areas of expertise.

A major new professional reference work on fingerprint security systems and technology from leading international researchers in the field. Handbook provides authoritative and comprehensive coverage of all major topics, concepts, and methods for fingerprint security systems. This unique reference work is an absolutely essential resource for all biometric

security professionals, researchers, and systems administrators.

Monitoring of public and private sites is increasingly becoming a very important and critical issue, especially after the recent flurry of terrorist attacks including the one on the World Trade Center in September 2001. It is, therefore, imperative that effective multisensor surveillance systems be developed to protect the society from similar attacks in the future. The new generation of surveillance systems to be developed have a specific requirement: they must be able to automatically identify criminal and terrorist activity without sacrificing individual privacy to the extent possible. Privacy laws concerning monitoring and surveillance systems vary from country to country but, in general, they try to protect the privacy of their citizens. Monitoring and visual surveillance has numerous other applications. It can be employed to help invalids or handicapped and to monitor the activities of elderly people. It can be used to monitor large events such as sporting events, as well. Nowadays, monitoring is employed in several different contexts including transport applications, such as monitoring of railway stations and airports, dangerous environments like nuclear facilities or traffic flows on roads and bridges. The latest generation of surveillance systems mainly rely on hybrid analog-digital, or completely digital video communications and processing methods and take advantage of the greater flexibility offered by video processing algorithms that are capable of focusing a human operator's attention on a set of interesting situations.

This book constitutes the refereed proceedings of the Third International Conference on Audio- and Video-Based Biometric Person Authentication, AVBPA 2001, held in Halmstad, Sweden in June 2001. The 51 revised papers presented together with three invited papers were carefully reviewed and selected for inclusion in the book. The papers are organized in topical sections on face as biometrics; face image processing; speech as biometrics and speech processing; fingerprints as biometrics; gait as biometrics; and hand, signature, and iris as biometrics.

This book constitutes the refereed proceedings of the Third International Conference on Audio- and Video-Based Biometric Person Authentication, AVBPA 2001, held in Halmstad, Sweden in June 2001. The 51 revised papers presented together with three invited papers were carefully reviewed and selected for inclusion in the book. The papers are organized in topical sections on face as biometrics; face image processing; speech as biometrics and speech processing; fingerprints as biometrics; gait as biometrics; and hand, signature, and iris as biometrics.

As multimedia applications have become part of contemporary daily life, numerous paradigm-shifting technologies in multimedia processing have emerged over the last decade. Substantially updated with 21 new chapters, *Multimedia Image and Video Processing, Second Edition* explores the most recent advances in multimedia research and applications. This edition presents a comprehensive treatment of multimedia information mining, security, systems, coding, search, hardware, and communications as well as multimodal information fusion and interaction. Clearly divided into seven parts, the book begins with a section on standards, fundamental methods, design issues, and typical architectures. It then focuses on the coding of video and multimedia content before covering multimedia search, retrieval, and management. After examining multimedia security, the book describes multimedia communications and networking and explains the architecture design and implementation for multimedia image and video processing. It concludes with a section on multimedia systems and applications. Written by some of the most prominent experts in the field, this updated edition provides readers with the latest research in multimedia processing and equips them with advanced techniques for the design of multimedia systems.

This book constitutes the refereed proceedings of the First International Conference on Audio- and Video-based Biometric Person Authentication, AVBPA'97, held in Crans-Montana, Switzerland, in March 1997. The 49 revised papers presented were carefully reviewed and selected by the program committee for inclusion in the book; also included are four invited contributions. The papers are organized in sections on facial features localisation, lip and facial motion, visual non-face biometrics, face-based authentication, text-dependent speaker authentication, text-independent authentication, audio-video features and fusion, and systems and applications.

This book constitutes the refereed proceedings of the 5th International Conference on Audio- and Video-Based Biometric Person Authentication, AVBPA 2005, held in Hilton Rye Town, NY, USA, in July 2005. The 66 revised oral papers and 50 revised poster papers presented were carefully reviewed and selected from numerous submissions. The papers discuss all aspects of biometrics including iris, fingerprint, face, palm print, gait, gesture, speaker, and signature; theoretical and algorithmic issues are dealt with as well as systems issues. The industrial side of biometrics is evident from presentations on smart cards, wireless devices, and architectural and implementation aspects.

It is a pleasure and an honour both to organize ICB 2009, the 3rd IAPR/IEEE International Conference on Biometrics. This will be held 2–5 June in Alghero, Italy, hosted by the Computer Vision Laboratory, University of Sassari. The conference series is the premier forum for presenting research in biometrics and its allied technologies: the generation of new ideas, new approaches, new techniques and new evaluations. The ICB series originated in 2006 from joining two highly reputed conferences: Audio and Video Based Personal Authentication (AVBPA) and the International Conference on Biometric Authentication (ICBA). Previous conferences were held in Hong Kong and in Korea. This is the first time the ICB conference has been held in Europe, and by Programme Committee, arrangements and by the quality of the papers, ICB 2009 will continue to maintain the high standards set by its predecessors. In total we received around 250 papers for review. Of these, 36 were selected for oral presentation and 93 for poster presentation. These papers are accompanied by the invited speakers: Heinrich H. Bühlhoff (Max Planck Institute for Biological Cybernetics, Tübingen, Germany) on “What Can Machine Vision Learn from Human Perception?”, - daoki Furui (Department of Computer Science, Tokyo Institute of Technology) on “40 Years of Progress in Automatic Speaker Recognition Technology” and Jean-Christophe Fondeur (SAGEM Security and Morpho, USA) on “Large Scale Deployment of Biometrics and Border Control”.

Edited by a panel of experts, this book fills a gap in the existing literature by comprehensively covering system, processing, and application aspects of biometrics, based on a wide variety of biometric traits. The book provides an extensive survey of biometrics theory, methods, and applications, making it an indispensable source of information for researchers, security experts, policy makers, engineers, practitioners, and graduate students. The book's wide and in-depth coverage of biometrics enables readers to build a strong, fundamental understanding of theory and methods, and provides a foundation for solutions to many of today's most interesting and challenging biometric problems. Biometric traits covered: Face, Fingerprint, Iris, Gait, Hand Geometry, Signature,

Electrocardiogram (ECG), Electroencephalogram (EEG), physiological biometrics. Theory, Methods and Applications covered: Multilinear Discriminant Analysis, Neural Networks for biometrics, classifier design, biometric fusion, Event-Related Potentials, person-specific characteristic feature selection, image and video-based face, recognition/verification, near-infrared face recognition, elastic graph matching, super-resolution of facial images, multimodal solutions, 3D approaches to biometrics, facial aging models for recognition, information theory approaches to biometrics, biologically-inspired methods, biometric encryption, decision-making support in biometric systems, privacy in biometrics.

This book provides ample coverage of theoretical and experimental state-of-the-art work as well as new trends and directions in the biometrics field. It offers students and software engineers a thorough understanding of how some core low-level building blocks of a multi-biometric system are implemented. While this book covers a range of biometric traits, its main emphasis is placed on multi-sensory and multi-modal face biometrics algorithms and systems.

"This book focuses on two kinds of advanced biometric recognition technologies, biometric data discrimination and multi-biometrics"--Provided by publisher.

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