Pattern Recognition in Computational Molecular Biology

Automatic Fingerprint Recognition Systems

Algorithms are essential building blocks of computer applications. However, advancements in computer hardware, which render traditional computer models more and more unrealistic, and an ever increasing demand for efficient solution to actual real world problems have led to a rising gap between classical algorithm theory and algorithmics in practice. The emerging discipline of Algorithm Engineering aims at bridging this gap. Driven by concrete applications, Algorithm Engineering complements theory by the benefits of experimentation and puts equal emphasis on all aspects arising during a cyclic solution process ranging from realistic modeling, design, analysis, robust and efficient implementations to careful experiments. This tutorial - outcome of a GI-Dagstuhl Seminar held in Dagstuhl Castle in September 2006 - covers the essential aspects of this process in ten chapters on basic ideas, modeling and design issues, analysis of algorithms, realistic computer models, implementation aspects and algorithmic software libraries, selected case studies, as well as challenges in Algorithm Engineering. Both researchers and practitioners in the field will find it useful as a state-of-the-art survey.

The Biometric Computing

This authoritative and comprehensive handbook is the definitive work on the current state of the art of Biometric Presentation Attack Detection (PAD) – also known as Biometric Anti-Spoofing. Building on the success of the previous, pioneering edition, this thoroughly updated second edition has been considerably expanded to provide even greater coverage of PAD methods, spanning biometrics systems based on face, fingerprint, iris, voice, vein, and signature recognition. New material is also included on major PAD competitions, important databases for research, and on the impact of recent international legislation. Valuable insights are supplied by a selection of leading experts in the field, complete with results from...
reproducible research, supported by source code and further information available at an associated website. Topics and features: reviews the latest developments in PAD for fingerprint biometrics, covering optical coherence tomography (OCT) technology, and issues of interoperability; examines methods for PAD in iris recognition systems, and the application of stimulated pupillary light reflex for this purpose; discusses advancements in PAD methods for face recognition-based biometrics, such as research on 3D facial masks and remote photoplethysmography (rPPG); presents a survey of PAD for automatic speaker recognition (ASV), including the use of convolutional neural networks (CNNs), and an overview of relevant databases; describes the results yielded by key competitions on fingerprint liveness detection, iris liveness detection, and software-based face anti-spoofing; provides analyses of PAD in fingervein recognition, online handwritten signature verification, and in biometric technologies on mobile devices; includes coverage of international standards, the E.U. PSDII and GDPR directives, and on different perspectives on presentation attack evaluation. This text/reference is essential reading for anyone involved in biometric identity verification, be they students, researchers, practitioners, engineers, or technology consultants. Those new to the field will also benefit from a number of introductory chapters, outlining the basics for the most important biometrics.

**Smart Computational Strategies: Theoretical and Practical Aspects**

This four-volume set contains the proceedings of the August 2002 conference based on the theme of pattern recognition for humankind and the environment. The 250 oral and seven invited papers and the 555 poster presentations cover topics including human motion; pattern recognition; neural networks and document analysis; color and texture; indexing and retrieval; computer vision and robotics; document, facial medical image, medical and microscopic image analysis; audio and image, handwriting, and image and signal processing; biomedical and multimedia applications; tracking; coding, compression and enhancement; active vision and calibration; human factors; recognition; classification; indexing and grouping; interpretation and learning; speech and handwriting, structural pattern, and clustering and statistical pattern recognition; segmentation; structure estimation; classification and feature selection; image retrieval; face detection; motion estimation; face pose; and stereo. There is no subject index.

**Biometric Systems**

We are entering the era of big data, and machine learning can be used to analyze this deluge of data automatically. Machine learning has been used to solve many interesting and often difficult real-world problems, and the biometrics is one of the leading applications of machine learning. This book introduces some new techniques on biometrics and machine learning, and new proposals of using machine learning techniques for biometrics as well. This book consists of two parts: "Biometrics" and "Machine Learning for Biometrics." Parts I and II contain four and three chapters, respectively. The book is reviewed by editors: Prof. Jucheng Yang, Prof. Dong Sun Park, Prof. Sook Yoon, Dr. Yarui Chen, and Dr. Chuanlei Zhang.

**Machine Learning and Biometrics**

The detection and recognition of objects in images is a key research topic in the computer vision community. Within this area, face recognition and interpretation has attracted increasing attention owing to the possibility of unveiling human perception mechanisms, and for the development of practical biometric systems. This book and the accompanying website, focus on template matching, a subset of object recognition techniques of wide applicability, which has proved to be particularly effective for face recognition applications. Using examples from face processing tasks throughout the book to illustrate more general object recognition approaches, Roberto Brunelli: examines the basics of digital image formation, highlighting points critical to the task of template matching; presents basic and advanced template matching techniques, targeting grey-level images, shapes and point sets; discusses recent pattern classification paradigms from a template matching perspective; illustrates the development
of a real face recognition system; explores the use of advanced computer graphics techniques in the development of computer vision algorithms. Template Matching Techniques in Computer Vision is primarily aimed at practitioners working on the development of systems for effective object recognition such as biometrics, robot navigation, multimedia retrieval and landmark detection. It is also of interest to graduate students undertaking studies in these areas.

**Touchless Fingerprint Biometrics**

"This book provides an in-depth description of existing and fresh fusion approaches for multimodal biometric systems, covering relevant topics affecting the security and intelligent industries"--Provided by publisher.

**Applications of Artificial Intelligence in Electrical Engineering**

Pattern recognition has gained significant attention due to the rapid explosion of internet- and mobile-based applications. Among the various pattern recognition applications, face recognition is always being the center of attraction. With so much of unlabeled face images being captured and made available on internet (particularly on social media), conventional supervised means of classifying face images become challenging. This clearly warrants for semi-supervised classification and subspace projection. Another important concern in face recognition system is the proper and stringent evaluation of its capability. This book is edited keeping all these factors in mind. This book is composed of five chapters covering introduction, overview, semi-supervised classification, subspace projection, and evaluation techniques.

**Handbook of Biometric Anti-Spoofing**

**Deep Learning for Biometrics**

This book constitutes the refereed proceedings of the First International Conference on Advanced Machine Learning Technologies and Applications, AMLTA 2012, held in Cairo, Egypt, in December 2012. The 58 full papers presented were carefully reviewed and selected from 99 initial submissions. The papers are organized in topical sections on rough sets and applications, machine learning in pattern recognition and image processing, machine learning in multimedia computing, bioinformatics and cheminformatics, data classification and clustering, cloud computing and recommender systems.

**Splash 2**

This timely text/reference presents a broad overview of advanced deep learning architectures for learning effective feature representation for perceptual and biometrics-related tasks. The text offers a showcase of cutting-edge research on the use of convolutional neural networks (CNN) in face, iris, fingerprint, and vascular biometric systems, in addition to surveillance systems that use soft biometrics. Issues of biometrics security are also examined. Topics and features: addresses the application of deep learning to enhance the performance of biometrics identification across a wide range of different biometrics modalities; revisits deep learning for face biometrics, offering insights from neuroimaging, and provides comparison with popular CNN-based architectures for face recognition; examines deep learning for state-of-the-art latent fingerprint and finger-vein recognition, as well as iris recognition; discusses deep learning for soft biometrics, including approaches for gesture-based identification, gender
classification, and tattoo recognition; investigates deep learning for biometrics security, covering biometrics template protection methods, and liveness detection to protect against fake biometrics samples; presents contributions from a global selection of pre-eminent experts in the field representing academia, industry and government laboratories. Providing both an accessible introduction to the practical applications of deep learning in biometrics, and a comprehensive coverage of the entire spectrum of biometric modalities, this authoritative volume will be of great interest to all researchers, practitioners and students involved in related areas of computer vision, pattern recognition and machine learning.

**Neural Computation**

This book details the complete Splash 2 project—the hardware and software systems, the architecture and its implementations, and the design process by which the architecture evolved from an earlier version machine. "Splash 2" illustrates several applications in detail, allowing readers to gain an understanding of the capabilities and the limitations of this kind of computing device.

**Computational Algorithms for Fingerprint Recognition**

**Information Science and Applications (ICISA) 2016**

At the frontier of research, this book offers complete coverage of human ear recognition. It explores all aspects of 3D ear recognition: representation, detection, recognition, indexing and performance prediction. It uses large datasets to quantify and compare the performance of various techniques. Features and topics include: Ear detection and recognition in 2D image; 3D object recognition and 3D biometrics; 3D ear recognition; Performance comparison and prediction.

**Advances in Computational Intelligence**

This book constitutes the revised selected papers of the 7th International Conference on Cloud Computing and Big Data, JCC&BD 2019, held in La Plata, Buenos Aires, Argentina, in June 2019. The 12 full papers presented were carefully reviewed and selected from a total of 31 submissions. They are dealing with such topics as cloud computing and HPC; Big Data and data intelligence; mobile computing.

**Template Matching Techniques in Computer Vision**

**Computational Algorithms Techniques for Fingerprint Recognition**

Computer Vision: Algorithms and Applications explores the variety of techniques commonly used to analyze and interpret images. It also describes challenging real-world applications where vision is being successfully used, both for specialized applications such as medical imaging, and for fun, consumer-level tasks such as image editing and stitching, which students can apply to their own personal photos and videos. More than just a source of “recipes,” this exceptionally authoritative and comprehensive textbook/reference also takes a scientific approach to basic vision problems, formulating physical models of the imaging process before inverting them to produce descriptions of a scene. These problems are also analyzed using statistical models and solved using rigorous engineering techniques. Topics and features: structured to support active curricula and project-
oriented courses, with tips in the Introduction for using the book in a variety of customized courses; presents exercises at the end of each chapter with a heavy emphasis on testing algorithms and containing numerous suggestions for small mid-term projects; provides additional material and more detailed mathematical topics in the Appendices, which cover linear algebra, numerical techniques, and Bayesian estimation theory; suggests additional reading at the end of each chapter, including the latest research in each sub-field, in addition to a full Bibliography at the end of the book; supplies supplementary course material for students at the associated website, http://szeliski.org/Book/. Suitable for an upper-level undergraduate or graduate-level course in computer science or engineering, this textbook focuses on basic techniques that work under real-world conditions and encourages students to push their creative boundaries. Its design and exposition also make it eminently suitable as a unique reference to the fundamental techniques and current research literature in computer vision.

16th International Conference on Pattern Recognition (ICPR 2002)

Biometrics such as fingerprint, face, gait, iris, voice and signature, recognizes one's identity using his/her physiological or behavioral characteristics. Among these biometric signs, fingerprint has been researched the longest period of time, and shows the most promising future in real-world applications. However, because of the complex distortions among the different impressions of the same finger, fingerprint recognition is still a challenging problem. Computational Algorithms for Fingerprint Recognition presents an entire range of novel computational algorithms for fingerprint recognition. These include feature extraction, indexing, matching, classification, and performance prediction/validation methods, which have been compared with state-of-art algorithms and found to be effective and efficient on real-world data. All the algorithms have been evaluated on NIST-4 database from National Institute of Standards and Technology (NIST). Specific algorithms addressed include: -Learned template based minutiae extraction algorithm, -Triplets of minutiae based fingerprint indexing algorithm, -Genetic algorithm based fingerprint matching algorithm, -Genetic programming based feature learning algorithm for fingerprint classification, -Comparison of classification and indexing based approaches for identification, -Fundamental fingerprint matching performance prediction analysis and its validation. Computational Algorithms for Fingerprint Recognition is designed for a professional audience composed of researchers and practitioners in industry. This book is also suitable as a secondary text for graduate-level students in computer science and engineering.

Computational Science and Its Applications

Biometric Authentication

Written for researchers, advanced students and practitioners to use as a handbook, this volume captures the very latest state-of-the-art research contributions from leading international researchers in the field.

Computer Information Systems and Industrial Management

A comprehensive overview of high-performance pattern recognition techniques and approaches to Computational Molecular Biology This book surveys the developments of techniques and approaches on pattern recognition related to Computational Molecular Biology. Providing a broad coverage of the field, the authors cover fundamental and technical information on these techniques and approaches, as well as discussing their related problems. The text consists of twenty nine chapters, organized into seven parts: Pattern Recognition in Sequences, Pattern Recognition in Secondary Structures, Pattern Recognition in Tertiary Structures, Pattern Recognition in Quaternary Structures, Pattern Recognition in Microarrays, Pattern Recognition in Phylogenetic Trees, and Pattern Recognition in Biological Networks. Surveys the development of techniques and approaches
on pattern recognition in biomolecular data Discusses pattern recognition in primary, secondary, tertiary and quaternary structures, as well as microarrays, phylogenetic trees and biological networks Includes case studies and examples to further illustrate the concepts discussed in the book Pattern Recognition in Computational Molecular Biology: Techniques and Approaches is a reference for practitioners and professional researchers in Computer Science, Life Science, and Mathematics. This book also serves as a supplementary reading for graduate students and young researchers interested in Computational Molecular Biology.

**Handbook of Fingerprint Recognition**

This book covers new developments and advances in the field of Computational Strategies for next-generation computing. The contributing authors share diverse perspectives on and extensive discussions of issues concerning the theory, applications, and future prospects. Addressing computing methodologies, hardware information systems and networks, this interdisciplinary book will appeal to all scholars with an interest in computing methodologies, hardware information systems and networks.

**The British National Bibliography**

This book constitutes the proceedings of the 16th IFIP TC8 International Conference on Computer Information Systems and Industrial Management, CISIM 2017, held in Bialystok, Poland, in June 2017. The 60 regular papers presented together with 5 keynotes were carefully reviewed and selected from 85 submissions. They are organized in the following topical sections: algorithms; biometrics and pattern recognition applications; data analysis and information retrieval; engineering of enterprise software products; industrial management and other applications; modelling and optimization; various aspects of computer security.

**Advanced Studies in Biometrics**

Bio-inspired computing (BIC) focuses on the designs and developments of computer algorithms and models based on biological mechanisms and living phenomena. It is now a major subfield of natural computation that leverages on the recent advances in computer science, biology and mathematics. The ideas provide abundant inspiration to construct high-performance computing models and intelligent algorithms, thus enabling powerful tools to solve real-life problems. Written by world-renowned researchers, this compendium covers the most influential topics on BIC, where the newly-obtained algorithms, developments and results are introduced and elaborated. The potential and valuable directions for further research are addressed as well.

**Sci-tech News**

Automatic person authentication, the identification and verification of an individual as such, has increasingly been acknowledged as a significant aspect of various security applications. Various recognition and identification systems have been based on biometrics utilizing biometric features such as fingerprint, face, retina scans, iris patterns, hand geometry, DNA traces, gait, and others. This book originates from an international summer school on biometrics, held in Alghero, Italy, in June 2003. The seven revised tutorial lectures by leading researchers introduce the reader to biometrics-based person authentication, fingerprint recognition, gait recognition, various aspects of face recognition and face detection, topologies for biometric recognition, and hand detection. Also included are the four best selected student papers, all dealing with face recognition.
Multimodal Biometrics and Intelligent Image Processing for Security Systems

This book contains selected papers from the 7th International Conference on Information Science and Applications (ICISA 2016) and provides a snapshot of the latest issues encountered in technical convergence and convergences of security technology. It explores how information science is core to most current research, industrial and commercial activities and consists of contributions covering topics including Ubiquitous Computing, Networks and Information Systems, Multimedia and Visualization, Middleware and Operating Systems, Security and Privacy, Data Mining and Artificial Intelligence, Software Engineering, and Web Technology. The contributions describe the most recent developments in information technology and ideas, applications and problems related to technology convergence, illustrated through case studies, and reviews converging existing security techniques. Through this volume, readers will gain an understanding of the current state-of-the-art information strategies and technologies of convergence security. The intended readers are researchers in academia, industry and other research institutes focusing on information science and technology.

Cloud Computing and Big Data

Annotation Presents 96 articles from the 1999 conference (exact date not noted) on intelligence in technological systems. The papers were drawn from four symposiums focusing respectively on intelligence in neural and biological systems; intelligence in automation and robotics; image, speech, and natural language understanding; and autonomous intelligent agents. Some representative topics include shape recognition and vision-based robot control, intelligent wheelchairs based on the integration of human and environment observation, velocity estimation using semi-local features, and a self-training agent for intelligent information discovery. Annotation copyrighted by Book News, Inc., Portland, OR.

Trends in Deep Learning Methodologies

Computational Intelligence (CI) is a recently emerging area in fundamental and applied research, exploiting a number of advanced information processing technologies that mainly embody neural networks, fuzzy logic and evolutionary computation. With a major concern to exploiting the tolerance for imperfection, uncertainty, and partial truth to achieve tractability, robustness and low solution cost, it becomes evident that composing methods of CI should be working concurrently rather than separately. It is this conviction that research on the synergism of CI paradigms has experienced significant growth in the last decade with some areas nearing maturity while many others remaining unresolved. This book systematically summarizes the latest findings and sheds light on the respective fields that might lead to future breakthroughs. Contents: A Quest for Granular Computing and Logic Processing (W Pedrycz); Abstraction and Linguistic Analysis of Conventional Numerical Dynamic Systems (F-Y Wang); Slicing: A Distributed Learning Approach (S A Eschrich & L O Hall); Marginal Learning Algorithms in Statistical Machine Learning (Q Tao & J Wang); Constraint Handling in Genetic Algorithm for Optimization (G G Yen); Hybrid PSO-EA Algorithm for Training Feedforward and Recurrent Neural Networks for Challenging Problems (X Cai et al.); Modular Wavelet-Fuzzy Networks (Y Lin & F-Y Wang); Ant Colony Algorithms: The State-of-the-Art (J Zhang et al.); Motif Discoveries in DNA and Protein Sequences Using Self-Organizing Neural Networks (D Liu & X Xiong); Computational Complexities of Combinatorial Problems with Applications to Reverse Engineering of Biological Networks (P Berman et al.); Advances in Fingerprint Recognition Algorithms with Application (J Tian et al.); Adaptation and Predictive Control Observed in Neuromuscular Control Systems (J He); Robust Adaptive Approximation Based Backstepping via Localized Adaptive Bounding (Y Zhao & J A Farrell); Dynamically Connected Fuzzy Single Input Rule Modules and Application to Underactuated Systems (J Yi et al.). Readership: Researchers, graduate and senior level undergraduate students in electrical & electronic engineering, computer engineering, neural networks, fuzzy logic and artificial intelligence.

Advanced Fingerprint Recognition: From 3D Shape to Ridge Detail
Trends in Deep Learning Methodologies: Algorithms, Applications, and Systems covers deep learning approaches such as neural networks, deep belief networks, recurrent neural networks, convolutional neural networks, deep auto-encoder, and deep generative networks, which have emerged as powerful computational models. Chapters elaborate on these models which have shown significant success in dealing with massive data for a large number of applications, given their capacity to extract complex hidden features and learn efficient representation in unsupervised settings. Chapters investigate deep learning-based algorithms in a variety of application, including biomedical and health informatics, computer vision, image processing, and more. In recent years, many powerful algorithms have been developed for matching patterns in data and making predictions about future events. The major advantage of deep learning is to process big data analytics for better analysis and self-adaptive algorithms to handle more data. Deep learning methods can deal with multiple levels of representation in which the system learns to abstract higher level representations of raw data. Earlier, it was a common requirement to have a domain expert to develop a specific model for each specific application, however, recent advancements in representation learning algorithms allow researchers across various subject domains to automatically learn the patterns and representation of the given data for the development of specific models. Provides insights into the theory, algorithms, implementation and the application of deep learning techniques Covers a wide range of applications of deep learning across smart healthcare and smart engineering Investigates the development of new models and how they can be exploited to find appropriate solutions

**Advances in Biometrics**

Fingerprints are among the most widely used biometric modalities and have been successfully applied in various scenarios. For example, in forensics, fingerprints serve as important legal evidence; and in civilian applications, fingerprints are used for access and attendance control as well as other identity services. Thanks to advances in three-dimensional (3D) and high-resolution imaging technology, it is now feasible to capture 3D or high-resolution fingerprints to provide extra information and go beyond the traditional features such as global ridge patterns and local ridge singularities used in conventional fingerprint recognition tasks. This book presents the state of the art in the acquisition and analysis of 3D and high-resolution fingerprints. Based on the authors’ research, this book focuses on advanced fingerprint recognition using 3D fingerprint features (i.e., finger shape, level 0 features) or high-resolution fingerprint features (i.e., ridge detail, level 3 features). It is a valuable resource for researchers, professionals and graduate students working in the field of computer vision, pattern recognition, security/biometrics practice, as well as interdisciplinary researchers.

**Documentation Abstracts**

Artificial intelligence is increasingly finding its way into industrial and manufacturing contexts. The prevalence of AI in industry from stock market trading to manufacturing makes it easy to forget how complex artificial intelligence has become. Engineering provides various current and prospective applications of these new and complex artificial intelligence technologies. Applications of Artificial Intelligence in Electrical Engineering is a critical research book that examines the advancing developments in artificial intelligence with a focus on theory and research and their implications. Highlighting a wide range of topics such as evolutionary computing, image processing, and swarm intelligence, this book is essential for engineers, manufacturers, technology developers, IT specialists, managers, academicians, researchers, computer scientists, and students.

**Computational Algorithms for Fingerprint Recognition**

"The Biometric Computing: Recognition & Registration" presents introduction of biometrics along with detailed analysis for identification and recognition methods. This book forms the required platform for understanding biometric computing and its implementation for securing target
system. It also provides the comprehensive analysis on algorithms, architectures and interdisciplinary connection of biometric computing along with detailed case-studies for newborns and resolution spaces. The strength of this book is its unique approach starting with how biometric computing works to research paradigms and gradually moves towards its advancement. This book is divided into three parts that comprises basic fundamentals and definitions, algorithms and methodologies, and futuristic research and case studies. Features: A clear view to the fundamentals of Biometric Computing Identification and recognition approach for different human characteristics Different methodologies and algorithms for human identification using biometrics traits such as face, Iris, fingerprint, palm print, voiceprint etc. Interdisciplinary connection of biometric computing with the fields like deep neural network, artificial intelligence, Internet of Biometric Things, low resolution face recognition etc. This book is an edited volume by prominent invited researchers and practitioners around the globe in the field of biometrics, describes the fundamental and recent advancement in biometric recognition and registration. This book is a perfect research handbook for young practitioners who are intending to carry out their research in the field of Biometric Computing and will be used by industry professionals, graduate and researcher students in the field of computer science and engineering.

**Algorithm Engineering**

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.

**Computer Vision**

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.

**Bio-inspired Computing Models And Algorithms**

Biometric Systems provides practitioners with an overview of the principles and methods needed to build reliable biometric systems. It covers three main topics: key biometric technologies, design and management issues, and the performance evaluation of biometric systems for personal verification/identification. The four most widely used technologies are focused on - speech, fingerprint, iris and face recognition. Key features include: in-depth coverage of the technical and practical obstacles which are often neglected by application developers and system integrators and which result in shortfalls between expected and actual performance; and protocols and benchmarks which will allow developers to compare performance and track system improvements.

**Face Recognition**

Fingerprints are the most established from of biometrics with the most promising future in real-world applications. However, because of the complex distortions among the different impressions of the same finger, fingerprint recognition is still a challenging problem. This book presents an entire range of novel computational algorithms for fingerprint recognition, all evaluated by the National Institute of Standards and Technology (NIST). These include feature extraction, indexing, matching, classification, and performance prediction/validation methods, which have been compared
Proceedings, 1999 International Conference on Information Intelligence and Systems

Biometrics such as fingerprint, face, gait, iris, voice and signature, recognizes one's identity using his/her physiological or behavioral characteristics. Among these biometric signs, fingerprint has been researched the longest period of time, and shows the most promising future in real-world applications. However, because of the complex distortions among the different impressions of the same finger, fingerprint recognition is still a challenging problem. Computational Algorithms for Fingerprint Recognition presents an entire range of novel computational algorithms for fingerprint recognition. These include feature extraction, indexing, matching, classification, and performance prediction/validation methods, which have been compared with state-of-art algorithms and found to be effective and efficient on real-world data. All the algorithms have been evaluated on NIST-4 database from National Institute of Standards and Technology (NIST). Specific algorithms addressed include: -Learned template based minutiae extraction algorithm, -Triplets of minutiae based fingerprint indexing algorithm, -Genetic algorithm based fingerprint matching algorithm, -Genetic programming based feature learning algorithm for fingerprint classification, -Comparison of classification and indexing based approaches for identification, -Fundamental fingerprint matching performance prediction analysis and its validation. Computational Algorithms for Fingerprint Recognition is designed for a professional audience composed of researchers and practitioners in industry. This book is also suitable as a secondary text for graduate-level students in computer science and engineering.

Advanced Machine Learning Technologies and Applications

An authoritative survey of intelligent fingerprint-recognition concepts, technology, and systems is given. Editors and contributors are the leading researchers and applied R&D developers of this personal identification (biometric security) topic and technology. Biometrics and pattern recognition researchers and professionals will find the book an indispensable resource for current knowledge and technology in the field.

Proceedings

Human Ear Recognition by Computer

Offering the first comprehensive analysis of touchless fingerprint-recognition technologies, Touchless Fingerprint Biometrics gives an overview of the state of the art and describes relevant industrial applications. It also presents new techniques to efficiently and effectively implement advanced solutions based on touchless fingerprinting. The most