

Iris Recognition Using Hough Transform Matlab Code

Information Science and Applications (ICISA) 2016

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.

Image Analysis and Recognition

The two volumes LNCS 8814 and 8815 constitute the thoroughly refereed proceedings of the 11th International Conference on Image Analysis and Recognition, ICIAR 2014, held in Vilamoura, Portugal,

in October 2014. The 107 revised full papers presented were carefully reviewed and selected from 177 submissions. The papers are organized in the following topical sections: image representation and models; sparse representation; image restoration and enhancement; feature detection and image segmentation; classification and learning methods; document image analysis; image and video retrieval; remote sensing; applications; action, gestures and audio-visual recognition; biometrics; medical image processing and analysis; medical image segmentation; computer-aided diagnosis; retinal image analysis; 3D imaging; motion analysis and tracking; and robot vision.

Iris Recognition Using Support Vector Machines

In this thesis, an iris recognition system is presented as a biometrically based technology for person identification using support vector machines (SVM). We propose two approaches for iris

recognition, namely: The approach I, which is based on the whole information of iris region and the approach II, where only the zigzag collarette region is used for recognition. In approach I, Canny edge detection and Hough transform are used to find the iris/pupil boundary from eye's digital image. The rubber sheet model is applied to normalize the segmented iris image, Gabor wavelet technique is deployed to extract the deterministic features and the traditional SVM is used for iris patterns classification. In approach II, an iris recognition method is proposed using a novel iris segmentation scheme based on chain code and zigzag collarette area. The Multi-Objectives Genetic Algorithm (MOGA) is employed to select features extracted from the normalized collarette region by log-Gabor filters to increase the overall recognition accuracy. The traditional SVM is modified to asymmetrical SVM to treat False Accept and False Reject differently. Our experimental results indicate that the performance of SVM as a classifier is better than the performance of classifiers based on feed-forward neural network using backpropagation and Levenberg-Marquardt rule, K-

nearest neighbor, and Hamming distance.

Advances in Pattern Recognition

This book constitutes the thoroughly refereed proceedings of the Second Mexican Conference on Pattern Recognition, MCPR 2010, held in Puebly, Mexico, in September 2010. The 39 revised papers were carefully reviewed and selected from 89 submissions and are organized in topical sections on computer vision and robotics, image processing, neural networks and signal processing, pattern recognition, data mining, natural language and document processing.

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Handbook of Iris Recognition

The definitive work on iris recognition technology, this comprehensive handbook presents a broad overview of the state of the art in this exciting and rapidly evolving field. Revised and updated from the highly-successful original, this second edition has

also been considerably expanded in scope and content, featuring four completely new chapters. Features: provides authoritative insights from an international selection of preeminent researchers from government, industry, and academia; reviews issues covering the full spectrum of the iris recognition process, from acquisition to encoding; presents surveys of topical areas, and discusses the frontiers of iris research, including cross-wavelength matching, iris template aging, and anti-spoofing; describes open source software for the iris recognition pipeline and datasets of iris images; includes new content on liveness detection, correcting off-angle iris images, subjects with eye conditions, and implementing software systems for iris recognition.

Modeling Applications and Theoretical Innovations

in Interdisciplinary Evolutionary Computation

Evolutionary computation has emerged as a major topic in the scientific community as many of its techniques have successfully been applied to solve problems in a wide variety of fields. Modeling Applications and Theoretical Innovations in Interdisciplinary Evolutionary Computation provides comprehensive research on emerging theories and its aspects on intelligent computation. Particularly focusing on breaking trends in evolutionary computing, algorithms, and programming, this publication serves to support professionals, government employees, policy and decision makers, as well as students in this scientific field.

Soft Computing Applications

These volumes constitute the Proceedings of the 6th International Workshop on Soft Computing Applications, or SOFA 2014, held on

24-26 July 2014 in Timisoara, Romania. This edition was organized by the University of Belgrade, Serbia in conjunction with Romanian Society of Control Engineering and Technical Informatics (SRAIT) - Arad Section, The General Association of Engineers in Romania - Arad Section, Institute of Computer Science, Iasi Branch of the Romanian Academy and IEEE Romanian Section. The Soft Computing concept was introduced by Lotfi Zadeh in 1991 and serves to highlight the emergence of computing methodologies in which the accent is on exploiting the tolerance for imprecision and uncertainty to achieve tractability, robustness and low solution cost. Soft computing facilitates the use of fuzzy logic, neurocomputing, evolutionary computing and probabilistic computing in combination, leading to the concept of hybrid intelligent systems. The combination of such intelligent systems tools and a large number of applications introduce a need for a synergy of scientific and technological disciplines in order to show the great potential of Soft Computing in all domains. The conference papers included in these proceedings, published post conference, were grouped into the

following area of research: · Image, Text and Signal Processing
Intelligent Transportation Modeling and Applications Biomedical
Applications Neural Network and Applications Knowledge-Based
Technologies for Web Applications, Cloud Computing, Security,
Algorithms and Computer Networks Knowledge-Based Technologies
Soft Computing Techniques for Time Series Analysis Soft
Computing and Fuzzy Logic in Biometrics Fuzzy Applications
Theory and Fuzzy Control Business Process Management Methods
and Applications in Electrical Engineering The volumes provide
useful information to professors, researchers and graduated
students in area of soft computing techniques and applications, as
they report new research work on challenging issues.

Progress in Pattern Recognition

This book features a collection of articles presented at the 2007
Workshop on Advances in Pattern Recognition, which was organized

in conjunction with the 5th International Summer School on Pattern Recognition. It provides readers with the state-of-the-art algorithms in the area of pattern recognition as well as a presentation of the cutting edge applications within the field.

Image Analysis and Recognition

This book constitutes the thoroughly refereed proceedings of the 7th International Conference, ICIAR 2010, held in Póvoa de Varzin, Portugal in June 2010. The 88 revised full papers were selected from 164 submissions. The papers are organized in topical sections on Image Morphology, Enhancement and Restoration, Image Segmentation, Feature Extraction and Pattern Recognition, Computer Vision, Shape, Texture and Motion Analysis, Coding, Indexing, and Retrieval, Face Detection and Recognition, Biomedical Image Analysis, Biometrics and Applications.

Image Analysis And Recognition

This book constitutes the refereed proceedings of the Second International Conference on Image Analysis and Recognition, ICIAR 2005, held in Toronto, Canada, in September 2005. The 153 revised full papers presented together with 2 invited papers were carefully reviewed and selected from 295 submissions. The papers are organized in topical sections on image segmentation, image and video processing and analysis, image and video coding, shape and matching, image description and recognition, image retrieval and indexing, 3D imaging, morphology, colour analysis, texture analysis, motion analysis, tracking, biomedical applications, face recognition and biometrics, image secret sharing, single-sensor imaging, and real-time imaging.

Guide to Biometric Reference Systems and Performance Evaluation

Biometrics has moved from using fingerprints to using many methods of assessing human physical and behavioral traits. This guide introduces a new performance evaluation framework designed to offer full coverage of performance evaluation of biometric systems.

Progress in Image Analysis and Processing, ICIAP 2013

This two volume set (LNCS 8156 and 8157) constitutes the refereed proceedings of the 17th International Conference on Image Analysis and Processing, ICIAP 2013, held in Naples, Italy, in September 2013. The 162 papers presented were carefully reviewed and

selected from 354 submissions. The papers aim at highlighting the connection and synergies of image processing and analysis with pattern recognition and machine learning, human computer systems, biomedical imaging and applications, multimedia interaction and processing, 3D computer vision, and understanding objects and scene.

Swarm Intelligence for Iris Recognition

Iris recognition is one of the highest accuracy techniques used in biometric systems. The accuracy of the iris recognition system is measured by False Reject Rate (FRR), which measures the authenticity of a user who is incorrectly rejected by the system due to changes in iris features (such as aging and health condition) and external factors that affect iris image, for instance, high noise rate.

External factors such as technical fault, occlusion, and source of lighting that causes the image acquisition to produce distorted iris

images create error, hence are incorrectly rejected by the biometric system. FRR can be reduced using wavelets and Gabor filters, cascaded classifiers, ordinal measures, multiple biometric modalities, and a selection of unique iris features. Nonetheless, in the long duration of the matching process, existing methods were unable to identify the authenticity of the user since the iris structure itself produces a template changed due to aging. In fact, the iris consists of unique features such as crypts, furrows, collarette, pigment blotches, freckles, and pupils that are distinguishable among humans. Earlier research was done by selecting unique iris features. However, these had low accuracy levels. A new way of identifying and matching the iris template using the nature-inspired algorithm is described in this book. It provides an overview of iris recognition that is based on nature-inspired environment technology. The book is useful for students from universities, polytechnics, community colleges; practitioners; and industry practitioners.

Advanced Image and Video Processing Using MATLAB

This book offers a comprehensive introduction to advanced methods for image and video analysis and processing. It covers deraining, dehazing, inpainting, fusion, watermarking and stitching. It describes techniques for face and lip recognition, facial expression recognition, lip reading in videos, moving object tracking, dynamic scene classification, among others. The book combines the latest machine learning methods with computer vision applications, covering topics such as event recognition based on deep learning, dynamic scene classification based on topic model, person re-identification based on metric learning and behavior analysis. It also offers a systematic introduction to image evaluation criteria showing how to use them in different experimental contexts. The book offers an example-based practical guide to researchers, professionals and graduate students dealing with advanced

problems in image analysis and computer vision.

Computer Analysis of Images and Patterns

The two volume set LNCS 6854/6855 constitutes the refereed proceedings of the International Conference on Computer Analysis of Images and Patterns, CAIP 2011, which took place in Seville, Spain, August 29-31, 2011. The 138 papers presented together with 2 invited talks were carefully reviewed and selected from 286 submissions. The papers are organized in topical section on: motion analysis, image and shape models, segmentation and grouping, shape recovery, kernel methods, medical imaging, structural pattern recognition, Biometrics, image and video processing, calibration; and tracking and stereo vision.

Comparison of Various Segmentation Techniques in Iris Recognition

Iris recognition is regarded as the most reliable and accurate biometric identification system available. Iris recognition system captures an image of an individual's eye, the iris in the image is then segmented and normalized for feature extraction process. The performance of iris recognition systems highly depends on segmentation. Segmentation is used to locate the correct iris region in an eye and it should be done accurately and correctly to remove the eyelids, eyelashes, reflection and pupil noises present in iris region. In our book we are comparing two segmentation methods namely, Daugman's algorithm and Hough Transform. Iris images are selected from the CASIA Database, then the iris and pupil boundary are detected from rest of the eye image, removing the noises. The segmented iris region was normalized to eliminate dimensional inconsistencies between iris regions by using Daugman's Rubber Sheet Model. A comparative analysis is made of the two

methods to find out the better method.

Signal and Image Processing for Biometrics

The aim of this book is to deal with biometrics in terms of signal and image processing methods and algorithms. This will help engineers and students working in digital signal and image processing deal with the implementation of such specific algorithms. It discusses numerous signal and image processing techniques that are very often used in biometric applications. In particular, algorithms related to hand feature extraction, speech recognition, 2D/3D face biometrics, video surveillance and other interesting approaches are presented. Moreover, in some chapters, Matlab codes are provided so that readers can easily reproduce some basic simulation results.

This book is suitable for final-year undergraduate students, postgraduate students, engineers and researchers in the field of computer engineering and applied digital signal and image

processing. 1. Introduction to Biometrics, Bernadette Dorizzi. 2. Introduction to 2D Face Recognition, Amine Nait-Ali and Dalila Cherifi. 3. Facial Soft Biometrics for Person Recognition, Antitza Dantcheva, Christelle Yemdji, Petros Elia and Jean-Luc Dugelay. 4. Modeling, Reconstruction and Tracking for Face Recognition, Catherine Herold, Vincent Despiegel, Stéphane Gentric, Séverine Dubuisson and Isabelle Bloch. 5. 3D Face Recognition, Mohsen Ardabilian, Przemyslaw Szeptycki, Di Huang and Liming Chen. 6. Introduction to Iris Biometrics, Kamel Aloui, Amine Nait-Ali, Régis Fournier and Saber Naceur. 7. Voice Biometrics: Speaker Verification and Identification, Foezur Chowdhury, Sid-Ahmed Selouani and Douglas O'Shaughnessy. 8. Introduction to Hand Biometrics, Régis Fournier and Amine Nait-Ali. 9. Multibiometrics, Romain Giot, Baptiste Hemery, Estelle Cherrier and Christophe Rosenberger. 10. Hidden Biometrics, Amine Nait-Ali, Régis Fournier, Kamel Aloui and Nouredine Belgacem. 11. Performance Evaluation of Biometric Systems, Mohamad El-Abed, Romain Giot, Baptiste Hemery, Julien Mahier and Christophe Rosenberger. 12.

Classification Techniques for Biometrics, Amel Bouchemha, Chérif Nait-Hamoud, Amine Nait-Ali and Régis Fournier. 13. Data Cryptography, Islam Naveed and William Puech. 14. Visual Data Protection, Islam Naveed and William Puech. 15. Biometrics in Forensics, Guillaume Galou and Christophe Lambert.

Enhancing Iris Recognition

In this book, we propose three techniques to increase the iris recognition robustness and accuracy. First, we propose a new segmentation algorithm to handle iris images were captured on less constrained conditions. This algorithm reduces the error percentage while there are types of noise, such as iris obstructions and specular reflection. The proposed algorithm uses the K-means algorithm, Circular Hough Transform and some new proposed algorithms to detect and isolate noise regions. Second, a study of the effect of the pupil dilation on iris recognition system is performed, in order to

show that the pupil dilation degrades iris template and affects the performance of recognition systems. Therefore, a limit of pupil dilation degree is determined. If the degree of pupil dilation exceeds this limit, the iris code will be affected or some of its information will be discarded. This limit can be used to avoid detrimental pupil dilation. Finally, we analyze the iris code bits to determine the consistent and inconsistent bits, and we compare between the inner and outer regions to find which region contains more inconsistent bits.

Iris Analysis for Biometric Recognition Systems

The book presents three most significant areas in Biometrics and Pattern Recognition. A step-by-step approach for design and implementation of Dual Tree Complex Wavelet Transform (DTCWT) plus Rotated Complex Wavelet Filters (RCWF) is discussed in detail. In addition to the above, the book provides detailed analysis of iris

images and two methods of iris segmentation. It also discusses simplified study of some subspace-based methods and distance measures for iris recognition backed by empirical studies and statistical success verifications.

Hybrid Intelligent Techniques for Pattern Analysis and Understanding

Hybrid Intelligent Techniques for Pattern Analysis and Understanding outlines the latest research on the development and application of synergistic approaches to pattern analysis in real-world scenarios. An invaluable resource for lecturers, researchers, and graduates students in computer science and engineering, this book covers a diverse range of hybrid intelligent techniques, including image segmentation, character recognition, human behavioral analysis, hyperspectral data processing, and medical

image analysis.

Wireless and Satellite Systems

This book constitutes the refereed post-conference proceedings of the 13th International Conference on Wireless and Satellite Services, WiSATS 2022, held in March 12-13, 2023. Due to COVID-19 pandemic the conference was held virtually. The 9 full papers were carefully reviewed and selected from 23 submissions. They were organized in topical sections as follows: Security and Privacy in Healthcare, Transportation, and Satellite Networks, Advanced Technologies in Wireless Communication Systems, Network Efficiency and Reliability.

Practical Image and Video Processing Using MATLAB

UP-TO-DATE, TECHNICALLY ACCURATE COVERAGE OF
ESSENTIAL TOPICS IN IMAGE AND VIDEO PROCESSING This is
the first book to combine image and video processing with a
practical MATLAB®-oriented approach in order to demonstrate the
most important image and video techniques and algorithms.

Utilizing minimal math, the contents are presented in a clear,
objective manner, emphasizing and encouraging experimentation.

The book has been organized into two parts. Part I: Image
Processing begins with an overview of the field, then introduces the
fundamental concepts, notation, and terminology associated with
image representation and basic image processing operations. Next,
it discusses MATLAB® and its Image Processing Toolbox with the
start of a series of chapters with hands-on activities and step-by-
step tutorials. These chapters cover image acquisition and
digitization; arithmetic, logic, and geometric operations; point-

based, histogram-based, and neighborhood-based image enhancement techniques; the Fourier Transform and relevant frequency-domain image filtering techniques; image restoration; mathematical morphology; edge detection techniques; image segmentation; image compression and coding; and feature extraction and representation. Part II: Video Processing presents the main concepts and terminology associated with analog video signals and systems, as well as digital video formats and standards. It then describes the technically involved problem of standards conversion, discusses motion estimation and compensation techniques, shows how video sequences can be filtered, and concludes with an example of a solution to object detection and tracking in video sequences using MATLAB®. Extra features of this book include: More than 30 MATLAB® tutorials, which consist of step-by-step guides to exploring image and video processing techniques using MATLAB® Chapters supported by figures, examples, illustrative problems, and exercises Useful websites and an extensive list of bibliographical references This accessible text is

ideal for upper-level undergraduate and graduate students in digital image and video processing courses, as well as for engineers, researchers, software developers, practitioners, and anyone who wishes to learn about these increasingly popular topics on their own.

Algorithms for Image Processing and Computer Vision

A cookbook of algorithms for common image processing applications Thanks to advances in computer hardware and software, algorithms have been developed that support sophisticated image processing without requiring an extensive background in mathematics. This bestselling book has been fully updated with the newest of these, including 2D vision methods in content-based searches and the use of graphics cards as image

processing computational aids. It's an ideal reference for software engineers and developers, advanced programmers, graphics programmers, scientists, and other specialists who require highly specialized image processing. Algorithms now exist for a wide variety of sophisticated image processing applications required by software engineers and developers, advanced programmers, graphics programmers, scientists, and related specialists This bestselling book has been completely updated to include the latest algorithms, including 2D vision methods in content-based searches, details on modern classifier methods, and graphics cards used as image processing computational aids Saves hours of mathematical calculating by using distributed processing and GPU programming, and gives non-mathematicians the shortcuts needed to program relatively sophisticated applications. Algorithms for Image Processing and Computer Vision, 2nd Edition provides the tools to speed development of image processing applications.

Fundamentals of Digital Image Processing

This is an introductory to intermediate level text on the science of image processing, which employs the Matlab programming language to illustrate some of the elementary, key concepts in modern image processing and pattern recognition. The approach taken is essentially practical and the book offers a framework within which the concepts can be understood by a series of well chosen examples, exercises and computer experiments, drawing on specific examples from within science, medicine and engineering. Clearly divided into eleven distinct chapters, the book begins with a fast-start introduction to image processing to enhance the accessibility of later topics. Subsequent chapters offer increasingly advanced discussion of topics involving more challenging concepts, with the final chapter looking at the application of automated image classification (with Matlab examples) . Matlab is frequently used in the book as a tool for demonstrations, conducting experiments and for solving problems, as it is both ideally suited to this role and is

widely available. Prior experience of Matlab is not required and those without access to Matlab can still benefit from the independent presentation of topics and numerous examples.

Features a companion website

www.wiley.com/go/solomon/fundamentals containing a Matlab fast-start primer, further exercises, examples, instructor resources and accessibility to all files corresponding to the examples and exercises within the book itself. Includes numerous examples, graded exercises and computer experiments to support both students and instructors alike.

Feature Extraction and Image Processing for Computer Vision

Feature Extraction and Image Processing for Computer Vision is an essential guide to the implementation of image processing and

computer vision techniques, with tutorial introductions and sample code in Matlab. Algorithms are presented and fully explained to enable complete understanding of the methods and techniques demonstrated. As one reviewer noted, \"The main strength of the proposed book is the exemplar code of the algorithms.\" Fully updated with the latest developments in feature extraction, including expanded tutorials and new techniques, this new edition contains extensive new material on Haar wavelets, Viola-Jones, bilateral filtering, SURF, PCA-SIFT, moving object detection and tracking, development of symmetry operators, LBP texture analysis, Adaboost, and a new appendix on color models. Coverage of distance measures, feature detectors, wavelets, level sets and texture tutorials has been extended. Named a 2012 Notable Computer Book for Computing Methodologies by Computing Reviews Essential reading for engineers and students working in this cutting-edge field Ideal module text and background reference for courses in image processing and computer vision The only currently available text to concentrate on feature extraction with

working implementation and worked through derivation

Biometric Recognition

This book constitutes the refereed proceedings of the 9th Chinese Conference on Biometric Recognition, CCBR 2014, held in Shenyang, China, in November 2014. The 60 revised full papers presented were carefully reviewed and selected from among 90 submissions. The papers focus on face, fingerprint and palmprint, vein biometrics, iris and ocular biometrics, behavioral biometrics, application and system of biometrics, multi-biometrics and information fusion, other biometric recognition and processing.

Biometric Systems

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.

Cross Disciplinary Biometric Systems

Cross disciplinary biometric systems help boost the performance of the conventional systems. Not only is the recognition accuracy significantly improved, but also the robustness of the systems is greatly enhanced in the challenging environments, such as varying illumination conditions. By leveraging the cross disciplinary technologies, face recognition systems, fingerprint recognition systems, iris recognition systems, as well as image search systems all benefit in terms of recognition performance. Take face recognition for an example, which is not only the most natural way human beings recognize the identity of each other, but also the least privacy-intrusive means because people show their face publicly every day. Face recognition systems display superb performance when they capitalize on the innovative ideas across color science, mathematics, and computer science (e.g., pattern recognition, machine learning, and image processing). The novel ideas lead to the development of new color models and effective

color features in color science; innovative features from wavelets and statistics, and new kernel methods and novel kernel models in mathematics; new discriminant analysis frameworks, novel similarity measures, and new image analysis methods, such as fusing multiple image features from frequency domain, spatial domain, and color domain in computer science; as well as system design, new strategies for system integration, and different fusion strategies, such as the feature level fusion, decision level fusion, and new fusion strategies with novel similarity measures.

Advances in Computing and Network Communications

This book constitutes the thoroughly refereed post-conference proceedings of the 4th International Conference on Computing and Network Communications (CoCoNet'20), October 14–17, 2020,

Chennai, India. The papers presented were carefully reviewed and selected from several initial submissions. The papers are organized in topical sections on Signal, Image and Speech Processing, Wireless and Mobile Communication, Internet of Things, Cloud and Edge Computing, Distributed Systems, Machine Intelligence, Data Analytics, Cybersecurity, Artificial Intelligence and Cognitive Computing and Circuits and Systems. The book is directed to the researchers and scientists engaged in various fields of computing and network communication domains.

Innovations in Smart Cities and Applications

This proceedings book showcases the latest research work presented at the Second Edition of the Mediterranean Symposium on Smart City Application (SCAMS 2017), which was held in Tangier, Morocco on October 15-27, 2017. It presents original research results, new ideas and practical development experiences

that concentrate on both theory and practice. It includes papers from all areas of Smart City Applications, e.g. Smart Mobility, Big Data, Smart Grids, Smart Homes and Buildings, clouds, crowds, mashups, social networks, and security issues. The conference stimulated cutting-edge research discussions among pioneering researchers, scientists, industrial engineers, and students from all around the world. The topics covered in this book also focus on innovative issues at the international level by bringing together experts from different countries. The scope of SCAMS 2017 included methods and practices that combine various emerging internetworking and data technologies to capture, integrate, analyze, mine, annotate, and visualize data in a meaningful and collaborative manner. A series of international workshops were organized as invited sessions during the SCAMS 2017: The 2nd International Workshop on Smart Learning & Innovative Educations, The 1st International Workshop on Smart Healthcare, The 1st International Workshop on Mathematics for Smart City, The 1st

International Workshop Industry 4.0 and Smart Manufacturing

Cloud Computing and Security

This book constitutes the proceedings of the International Conference on Cloud Computing and Security (ICCCS 2015) will be held on August 13-15, 2015 in Nanjing, China. The objective of ICCCS 2015 is to provide a forum for researchers, academicians, engineers, industrial professionals, students and government officials involved in the general areas of information security and cloud computing.

Intelligent Computing, Information and Control

Systems

From past decades, Computational intelligence embraces a number of nature-inspired computational techniques which mainly encompasses fuzzy sets, genetic algorithms, artificial neural networks and hybrid neuro-fuzzy systems to address the computational complexities such as uncertainties, vagueness and stochastic nature of various computational problems practically. At the same time, Intelligent Control systems are emerging as an innovative methodology which is inspired by various computational intelligence process to promote a control over the systems without the use of any mathematical models. To address the effective use of intelligent control in Computational intelligence systems, International Conference on Intelligent Computing, Information and Control Systems (ICICCS 2019) is initiated to encompass the various research works that helps to develop and advance the next-generation intelligent computing and control systems. This book integrates the computational intelligence and intelligent control

systems to provide a powerful methodology for a wide range of data analytics issues in industries and societal applications. The recent research advances in computational intelligence and control systems are addressed, which provide very promising results in various industry, business and societal studies. This book also presents the new algorithms and methodologies for promoting advances in common intelligent computing and control methodologies including evolutionary computation, artificial life, virtual infrastructures, fuzzy logic, artificial immune systems, neural networks and various neuro-hybrid methodologies. This book will be pragmatic for researchers, academicians and students dealing with mathematically intransigent problems. It is intended for both academicians and researchers in the field of Intelligent Computing, Information and Control Systems, along with the distinctive readers in the fields of computational and artificial intelligence to gain more knowledge on Intelligent computing and control systems and their real-world applications.

15th International Conference on Pattern Recognition

Iris Biometrics: From Segmentation to Template Security provides critical analysis, challenges and solutions on recent iris biometric research topics, including image segmentation, image compression, watermarking, advanced comparators, template protection and more. Open source software is also provided on a dedicated website which includes feature extraction, segmentation and matching schemes applied in this book to foster scientific exchange. Current state-of-the-art approaches accompanied by comprehensive experimental evaluations are presented as well. This book has been designed as a secondary text book or reference for researchers and advanced-level students in computer science and electrical engineering. Professionals working in this related field will also find this book useful as a reference.

Iris Biometrics

Computer and Machine Vision: Theory, Algorithms, Practicalities (previously entitled Machine Vision) clearly and systematically presents the basic methodology of computer and machine vision, covering the essential elements of the theory while emphasizing algorithmic and practical design constraints. This fully revised fourth edition has brought in more of the concepts and applications of computer vision, making it a very comprehensive and up-to-date tutorial text suitable for graduate students, researchers and R&D engineers working in this vibrant subject. Key features include:

Practical examples and case studies give the 'ins and outs' of developing real-world vision systems, giving engineers the realities of implementing the principles in practice. New chapters containing case studies on surveillance and driver assistance systems give practical methods on these cutting-edge applications in computer vision. Necessary mathematics and essential theory are made approachable by careful explanations and well-illustrated examples.

Updated content and new sections cover topics such as human iris location, image stitching, line detection using RANSAC, performance measures, and hyperspectral imaging. The 'recent developments' section now included in each chapter will be useful in bringing students and practitioners up to date with the subject. Roy Davies is Emeritus Professor of Machine Vision at Royal Holloway, University of London. He has worked on many aspects of vision, from feature detection to robust, real-time implementations of practical vision tasks. His interests include automated visual inspection, surveillance, vehicle guidance and crime detection. He has published more than 200 papers, and three books - Machine Vision: Theory, Algorithms, Practicalities (1990), Electronics, Noise and Signal Recovery (1993), and Image Processing for the Food Industry (2000); the first of these has been widely used internationally for more than 20 years, and is now out in this much enhanced fourth edition. Roy holds a DSc at the University of London, and has been awarded Distinguished Fellow of the British Machine Vision Association, and Fellow of the International

Association of Pattern Recognition.

Computer and Machine Vision

Fundamentals of Image, Audio, and Video Processing Using MATLAB® introduces the concepts and principles of media processing and its applications in pattern recognition by adopting a hands-on approach using program implementations. The book covers the tools and techniques for reading, modifying, and writing image, audio, and video files using the data analysis and visualization tool MATLAB®. Key Features: Covers fundamental concepts of image, audio, and video processing Demonstrates the use of MATLAB® on solving problems on media processing Discusses important features of Image Processing Toolbox, Audio System Toolbox, and Computer Vision Toolbox MATLAB® codes are provided as answers to specific problems Illustrates the use of Simulink for audio and video processing Handles processing

techniques in both the Spatio-Temporal domain and Frequency domain This is a perfect companion for graduate and post-graduate students studying courses on image processing, speech and language processing, signal processing, video object detection and tracking, and related multimedia technologies, with a focus on practical implementations using programming constructs and skill developments. It will also appeal to researchers in the field of pattern recognition, computer vision and content-based retrieval, and for students of MATLAB® courses dealing with media processing, statistical analysis, and data visualization. Dr. Ranjan Parekh, PhD (Engineering), is Professor at the School of Education Technology, Jadavpur University, Calcutta, India, and is involved with teaching subjects related to Graphics and Multimedia at the post-graduate level. His research interest includes multimedia information processing, pattern recognition, and computer vision.

Fundamentals of Image, Audio, and Video Processing Using MATLAB®

These are the proceedings of the International Conference on ISMAC-CVB, held in Palladam, India, in May 2018. The book focuses on research to design new analysis paradigms and computational solutions for quantification of information provided by object recognition, scene understanding of computer vision and different algorithms like convolutional neural networks to allow computers to recognize and detect objects in images with unprecedented accuracy and to even understand the relationships between them. The proceedings treat the convergence of ISMAC in Computational Vision and Bioengineering technology and includes ideas and techniques like 3D sensing, human visual perception, scene understanding, human motion detection and analysis, visualization and graphical data presentation and a very wide range of sensor modalities in terms of surveillance, wearable applications, home automation etc. ISMAC-CVB is a forum for leading academic

scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of computational vision and bioengineering.

**Proceedings of the International Conference on
ISMAC in Computational Vision and Bio-Engineering
2018 (ISMAC-CVB)**

Instead of focusing on the mathematical properties of moments, this book is a compendium of research that demonstrates the effectiveness of orthogonal moment-based features in face recognition, expression recognition, fingerprint recognition and iris recognition. The usefulness of moments and their invariants in pattern recognition is well known. What is less well known is how orthogonal moments may be applied to specific problems in human-centric visual pattern recognition. Unlike previous books, this work

highlights the fundamental issues involved in moment-based pattern recognition, from the selection of discriminative features in a high-dimensional setting, to addressing the question of how to classify a large number of patterns based on small training samples. In addition to offering new concepts that illustrate the use of statistical methods in addressing some of these issues, the book presents recent results and provides guidance on implementing the methods. Accordingly, it will be of interest to researchers and graduate students working in the broad areas of computer vision and visual pattern recognition.

Orthogonal Image Moments for Human-Centric Visual Pattern Recognition

This book presents a selection of chapters, written by leading international researchers, related to the automatic analysis of

gestures from still images and multi-modal RGB-Depth image sequences. It offers a comprehensive review of vision-based approaches for supervised gesture recognition methods that have been validated by various challenges. Several aspects of gesture recognition are reviewed, including data acquisition from different sources, feature extraction, learning, and recognition of gestures.

Gesture Recognition

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