Multichannel Filters For Image Processing

This collective work identifies the latest developments in thefield of the automatic processing and analysis of digital colorimages. For researchers and students, it represents a critical state of theart on the scientific issues raised by the various stepsconstituting the chain of color image processing. It covers a wide range of topics related to computational colorimaging, including color filtering and segmentation, color texturecharacterization, color invariant for object recognition, color andmotion analysis, as well as color image and video indexing andretrieval. Contents 1. Color Representation and Processing in Polar Color Spaces,Jesús Angulo, Sébastien Lefèvre and OlivierLezoray. 2. Adaptive Median Color Filtering, FrédériqueRobert-Inacio and Eric Dinet. 3. Anisotropic Diffusion PDEs for Regularization of MultichannelImages: Formalisms and Applications, David Tschumperlé. 4. Linear Prediction in Spaces with Separate Achromatic andChromatic Information,Olivier Alata, Imtnan Qazi, Jean-ChristopheBurie and Christine Fernandez-Maloigne. 5. Region Segmentation, Alain Clément, Laurent Busin, OlivierLezoray and Ludovic Macaire. 6. Color Texture Attributes, Nicolas Vandenbroucke, Olivier Alata,Christèle Lecomte, Alice Porebski and

Imtnan Qazi. 7. Photometric Color Invariants for Object Recognition, DamienMuselet. 8. Color Key Point Detectors and Local Color Descriptors, DamienMuselet and Xiaohu Song. 9. Motion Estimation in Color Image Sequences, Bertrand Augereauand Jenny Benois-Pineau.

Emphasizes the convergence of information processing algorithms and associated technologies.

This book constitutes the refereed proceedings of the 10th IFIP TC 12 International Conference on Intelligent Information Processing, IIP 2018, held in Nanning, China, in October 2018. The 37 full papers and 8 short papers presented were carefully reviewed and selected from 80 submissions. They are organized in topical sections on machine learning, deep learning, multi-agent systems, neural computing and swarm intelligence, natural language processing, recommendation systems, social computing, business intelligence and security, pattern recognition, and image understanding.

New digital image processing and recognition methods, implementation techniques and advanced applications (television, remote sensing, biomedicine, traffic, inspection, robotics, etc.) are presented in this volume. Novel approaches (i.e. digital filters, source coding, neural networks etc.) for solving 2-D and 3-D problems are described. Many papers focus on the motion estimation and tracking recognition of moving objects. The increasingly

important field of Cultural Heritage is also covered. Some papers are more theoretical or of review nature, while others contain new implementations and applications. Generally the book presents - for the above outlined area - the state of the art (theory, implementation, applications) with future trends. This book will be of interest not only to researchers, professors and students in university departments of engineering, communications, computers and automatic control, but also to engineers and managers of industries concerned with computer vision, manufacturing, automation, robotics and quality control.

We are proud to present the DAGM 2002 proceedings, which are the result of the e?orts of many people. First, there are the many authors, who have submitted so many excellent cont- butions. We received more than 140 papers, of which we could only accept about half in order not to overload the program. Only about one in seven submitted papers could be delivered as an oral presentation, for the same reason. But it needs to be said that almost all submissions were of a really high quality. This strong program could not have been put together without the support of the Program Committee. They took their responsibility most seriously and we are very grateful for their reviewing work, which certainly took more time than anticipated, given the larger than usual number of submissions. Our three invited

speakers added a strong multidisciplinary component to the conference. Dr. Antonio Criminisi of Microsoft Research (Redmond, USA) dem- strated how computer vision can literally bring a new dimension to the app- ciation of art. Prof. Philippe Schyns (Dept. of Psychology, Univ. of Glasgow, UK) presented intriguing insights into the human perception of patterns, e.g., the role of scale. Complementary to this presentation, Prof. Manabu Tanifuji of the Brain Science Institute in Japan (Riken) discussed novel neurophysiological ?ndings on how the brain deals with the recognition of objects and their parts.

The two-volume set LNCS 4141, and LNCS 4142 constitutes the refereed proceedings of the Third International Conference on Image Analysis and Recognition, ICIAR 2006. The volumes present 71 revised full papers and 92 revised poster papers together with 2 invited lectures. Volume I includes papers on image restoration and enhancement, image segmentation, image and video processing and analysis, image and video coding and encryption, image retrieval and indexing, and more.

A unique collection of algorithms and lab experiments for practitioners and researchers of digital image processing technology With the field of digital image processing rapidly expanding, there is a growing need for a book that would go beyond theory and techniques to address the underlying

algorithms. Digital Image Processing Algorithms and Applications fills the gap in the field, providing scientists and engineers with a complete library of algorithms for digital image processing, coding, and analysis. Digital image transform algorithms, edge detection algorithms, and image segmentation algorithms are carefully gleaned from the literature for compatibility and a track record of acceptance in the scientific community. The author guides readers through all facets of the technology, supplementing the discussion with detailed lab exercises in EIKONA, his own digital image processing software, as well as useful PDF transparencies. He covers in depth filtering and enhancement, transforms, compression, edge detection, region segmentation, and shape analysis, explaining at every step the relevant theory, algorithm structure, and its use for problem solving in various applications. The availability of the lab exercises and the source code (all algorithms are presented in C-code) over the Internet makes the book an invaluable self-study guide. It also lets interested readers develop digital image processing applications on ordinary desktop computers as well as on Unix machines.

This book constitutes the refereed proceedings of the 13th Iberoamerican Congress on Pattern Recognition, CIARP 2008, held in Havana, Cuba, in September 2008. The 93 revised full papers presented together with 3 keynote articles were

carefully reviewed and selected from 182 submissions. The papers are organized in topical sections on signal analysis for characterization and filtering, analysis of shape and texture, analysis of speech and language, data mining, clustering of images and documents, statistical pattern recognition, classification and description of objects, classification and edition, geometric image analysis, neural networks, computer vision, image coding, associative memories and neural networks, interpolation and video tracking, images analysis, music and speech analysis, as well as classifier combination and document filtering.

The function of a filter is to transform a signal into another one more suit able for a given purpose. As such, filters find applications in telecommunica tions, radar, sonar, remote sensing, geophysical signal processing, image pro cessing, and computer vision. Numerous authors have considered deterministic and statistical approaches for the study of passive, active, digital, multidimen sional, and adaptive filters. Most of the filters considered were linear although the theory of nonlinear filters is developing rapidly, as it is evident by the numerous research papers and a few specialized monographs now available. Our research interests in this area created opportunity for cooperation and co authored publications during the past few years in many nonlinear filter families described in this book. As a result of this cooperation and a visit from John Pitas on a research leave at the University of Toronto in September 1988,

the idea for this book was first conceived. The difficulty in writing such a mono graph was that the area seemed fragmented and no general theory was available to encompass the many different kinds of filters presented in the literature. However, the similarities of some families of nonlinear filters and the need for such a monograph providing a broad overview of the whole area made the pro ject worthwhile. The result is the book now in your hands, typeset at the Department of Electrical Engineering of the University of Toronto during the summer of 1989.

This text covers state-of-the-art color image and video enhancement techniques. The book examines the multivariate nature of color image/video data as it pertains to contrast enhancement, color correction (equalization, harmonization, normalization, balancing, constancy, etc.), noise removal and smoothing. This book also discusses color and contrast enhancement in vision sensors and applications of image and video enhancement.

Reporting the state of the art of colour image processing, this monograph fills a gap in the literature on digital signal and image processing. It contains numerous examples and pictures of colour image processing results, plus a library of algorithms implemented in C.

Since time immemorial, vision in general and images in particular have played an important and essential role in human life. Nowadays, the field of image processing also has numerous scientific, commercial, industrial and military applications. All these applications result from the interaction between fun damental scientific research

on the one hand, and the development of new and high-standard technology on the other hand. Regarding the scientific com ponent, quite recently the scientific community became familiar with "fuzzy techniques" in image processing, which make use of the framework of fuzzy sets and related theories. The theory of fuzzy sets was initiated in 1965 by Zadeh, and is one of the most developed models to treat imprecision and uncertainty. Instead of the classical approach that an object belongs or does not belong to a set, the concept of a fuzzy set allows a gradual transition from membership to nonmembership, providing partial degrees of member ship. Fuzzy techniques are often complementary to existing techniques and can contribute to the development of better and more robust methods, as has already been illustrated in numerous scientific branches. With this vol ume, we want to demonstrate that the introduction and application of fuzzy techniques can also be very successful in the area of image processing. This book contains high-quality contributions of over 30 field experts, covering a wide range of both theoretical and practical applications of fuzzy techniques in image processing.

There are six sections in this book. The first section presents basic image processing techniques, such as image acquisition, storage, retrieval, transformation, filtering, and parallel computing. Then, some applications, such as road sign recognition, air quality monitoring, remote sensed image analysis, and diagnosis of industrial parts are considered. Subsequently, the application of image processing for

the special eye examination and a newly three-dimensional digital camera are introduced. On the other hand, the section of medical imaging will show the applications of nuclear imaging, ultrasound imaging, and biology. The section of neural fuzzy presents the topics of image recognition, self-learning, image restoration, as well as evolutionary. The final section will show how to implement the hardware design based on the SoC or FPGA to accelerate image processing.

An introduction to color in three-dimensional image processing and the emerging area of multi-spectral image processing The importance of color information in digital image processing is greater than ever. However, the transition from scalar to vector-valued image functions has not yet been generally covered in most textbooks. Now, Digital Color Image Processing fills this pressing need with a detailed introduction to this important topic. In four comprehensive sections, this book covers: The fundamentals and requirements for color image processing from a vector-valued viewpoint Techniques for preprocessing color images Three-dimensional scene analysis using color information, as well as the emerging area of multi-spectral imaging Applications of color image processing, presented via the examination of two case studies In addition to introducing readers to important new technologies in the field, Digital Color Image Processing also contains novel topics such as: techniques for improving three-dimensional reconstruction, three-dimensional computer vision, and emerging areas of safety and security applications in luggage inspection and video surveillance

of high-security facilities. Complete with full-color illustrations and two applications chapters, Digital Color Image Processing is the only book that covers the breadth of the subject under one convenient cover. It is written at a level that is accessible for first- and second-year graduate students in electrical and computer engineering and computer science courses, and that is also appropriate for researchers who wish to extend their knowledge in the area of color image processing.

The ongoing increase in scale of integration of electronics makes storage and computational power affordable to many applications. Also image process ing systems can benefit from this trend. A variety of algorithms for image processing tasks becomes close at hand. From the whole range of possible approaches, those based on fuzzy logic are the ones this book focusses on. A particular useful property of fuzzy logic techniques is their ability to represent knowledge in a way which is comprehensible to human interpretation. The theory of fuzzy sets and fuzzy logic was initiated in 1965 by Zadeh, and is one of the most developed models to treat imprecision and uncertainty. Instead of the classical approach that an object belongs or does not belong to a set, the concept of a fuzzy set allows a gradual transition from mem bership to nonmembership, providing partial degrees of membership. Fuzzy techniques are often complementary to existing techniques and can contribute to the development of better and more robust methods, as has already been illustrated in numerous scientific branches. The present book resulted from the workshop "Fuzzy Filters for

Image Processing" which was organized at the 10th FUZZ-IEEE Conference in Mel bourne, Australia. At this event several speakers have given an overview of the current state-of-the-art of fuzzy filters for image processing. Afterwards, the book has been completed with contributions of other international re searchers. Computer analysis of images and patterns is a scienti c eld of longstanding tradition, with roots in the early years of the computer era when electronic brains inspired scientists. Moreover, the design of vision machines is a part of humanity's dream of the arti cial person. I remember the 2nd CAIP, held in Wismar in 1987. Lectures were read in German, English and Russian, and proceedings were also only partially written in English. The conference took place under a di erent political system and proved that ideas are independent of political walls. A few years later the Berlin Wall collapsed, and Professors Sommer and Klette proposed a new formula for the CAIP: let it be held in Central and Eastern Europe every second year. There was a sense of solidarity with scienti c communities in those countries that found themselves in a state of transition to a new economy. A well-implemented idea resulted in a chain of successful events in Dresden (1991), Budapest (1993), Prague (1995), Kiel (1997), and Ljubljana (1999). This year the conference was welcomed at Warsaw. There are three invited lectures and about 90 contributions written by more than 200 authors from 27 countries. Besides Poland (60 authors), the largest representation comes from France (23), followed by England (16), Czech Republic (11), Spain (10), G- many (9), and

Belarus (9). Regrettably, in spite of free registration fees and free accommodation for authors from former Soviet Union countries, we received only one accepted paper from Russia.

As the speed, capabilities, and economic advantages of modern digital devices c- tinue to grow, the need for ef?cient information processing, especially in computer - sion and graphics, dramatically increases. Growth in these ?elds stimulated by eme- ing applications has been both in concepts and techniques. New ideas, concepts and techniques are developed, presented, discussed and evaluated, subsequently expanded or abandoned. Such processes take place in different forms in various ?elds of the c- puter science and technology. The objectives of the ICCVG are: presentation of current research topics and d- cussions leading to the integration of the community engaged in machine vision and computer graphics, carrying out and supporting research in the ?eld and ?nally pro- tion of new applications. The ICCVG is a continuation of the former International Conference on Computer Graphics and Image Processing called GKPO, held in Poland every second year in May since 1990, organized by the Institute of Computer Science of the Polish Academy of Sciences, Warsaw and chaired by the Editor of the International Journal of Machine Graphics and Vision, Prof. Wojciech S. Mokrzycki.

Cet ouvrage collectif recense les dernières avancées dans le domaine de l'analyse automatique des images numériques couleur. Destiné aux chercheurs, ingénieurs R&D et étudiants en Master ou Doctorat, il constitue un état de l'art critique et le plus exhaustif possible sur les problématiques scientifiques soulevées par les différentes étapes constituant une chaîne de traitement des images couleur. Le filtrage et la segmentation des images fixes sont abordés par des techniques récentes telles que les outils morphologiques couleur, les équations aux dérivées partielles, l'algèbre quaternionique ou l'analyse de graphes. La caractérisation des textures couleur est traitée par la prédiction linéaire ou des descripteurs statistiques. La reconnaissance d'objets fixes ou en mouvement dans des vidéos couleur nécessite d'utiliser des attributs invariants aux conditions d'éclairage. Une attention particulière a été apportée aux espaces couleur, et notamment ceux séparant la luminance de la chrominance.

Soft computing represents a collection of techniques, such as neural networks, evolutionary computation, fuzzy logic, and probabilistic reasoning. As - posed to conventional "hard" computing, these techniques tolerate impre- sion and uncertainty, similar to human beings. In the recent years, successful applications of these powerful methods have been published in many dis- plines in numerous journals,

conferences, as well as the excellent books in this book series on Studies in Fuzziness and Soft Computing. This volume is dedicated to recent novel applications of soft computing in multimedia processing. The book is composed of 21 chapters written by experts in their respective fields, addressing various important and timely problems in multimedia computing such as content analysis, indexing and retrieval, recognition and compression, processing and filtering, etc. In the chapter authored by Guan, Muneesawang, Lay, Amin, and Lee, a radial basis function network with Laplacian mixture model is employed to perform image and video retrieval. D. Androutsos, P. Androutsos, Plataniotis, and Venetsanopoulos investigate color image indexing and retrieval within a small-world framework. Wu and Yap develop a framework of fuzzy relevance feedback to model the uncertainty of users' subjective perception in image retrieval.

The book presents findings, views and ideas on what exact problems of image processing, pattern recognition and generation can be efficiently solved by cellular automata architectures. This volume provides a convenient collection in this area, in which publications are otherwise widely scattered throughout the literature. The topics covered include image compression and resizing; skeletonization, erosion and dilation; convex hull computation, edge detection and segmentation; forgery detection and

content based retrieval; and pattern generation. The book advances the theory of image processing, pattern recognition and generation as well as the design of efficient algorithms and hardware for parallel image processing and analysis. It is aimed at computer scientists, software programmers, electronic engineers, mathematicians and physicists, and at everyone who studies or develops cellular automaton algorithms and tools for image processing and analysis, or develops novel architectures and implementations of massive parallel computing devices. The book will provide attractive reading for a general audience because it has do-it-yourself appeal: all the computer experiments presented within it can be implemented with minimal knowledge of programming. The simplicity yet substantial functionality of the cellular automaton approach, and the transparency of the algorithms proposed, makes the text ideal supplementary reading for courses on image processing, parallel computing, automata theory and applications.

Multimedia stands as one of the most challenging and exciting aspects of the information era. Although there are books available that deal with various facets of multimedia, the field has urgently needed a comprehensive look at recent developments in the systems, processing, and applications of image and video data in a multimedia environment.

Biological systems are inherently stochastic and uncertain. Thus, research in bioinformatics, biomedical engineering and computational biology has to deal with a large amount of uncertainties. Fuzzy logic has shown to be a powerful tool in capturing different uncertainties in engineering systems. In recent years, fuzzy logic based modeling and analysis approaches are also becoming popular in analyzing biological data and modeling biological systems. Numerous research and application results have been reported that demonstrated the effectiveness of fuzzy logic in solving a wide range of biological problems found in bioinformatics, biomedical engineering, and computational biology. Contributed by leading experts world-wide, this edited book contains 16 chapters presenting representative research results on the application of fuzzy systems to genome sequence assembly, gene expression analysis, promoter analysis, cis-regulation logic analysis and synthesis, reconstruction of genetic and cellular networks, as well as biomedical problems, such as medical image processing, electrocardiogram data classification and anesthesia monitoring and control. This volume is a valuable reference for researchers, practitioners, as well as graduate students working in the field of bioinformatics, biomedical engineering and computational biology.

Intelligent and adaptive techniques are rapidly being

used in all stages of medical treatment, from the initial diagnosis to planning delivery and follow-up therapy.To realize the full potential of these techniques, developers and end users must understand both the underlying technology and the specifics of the medical application considered. Focusing on this growing area of interest, Intelligent and Adaptive Systems in Medicine clearly and concisely explains a range of adaptive and intelligent systems, highlighting their benefits and limitations with realistic medical examples. Bringing together theory and practice, this volume describes the application of adaptive and intelligent control as well as intelligent systems in the diagnosis, planning, treatment, and follow up of diseases such as cancer. Each chapter presents a family of an intelligent and adaptive system, explains the techniques and algorithms behind these systems, and explores how to solve medical and biomedical problems using intelligent and adaptive systems. The book focuses on the methods of fuzzy logic, artificial neural networks, neuro-fuzzy modeling, adaptive and predictive control, systems and statistical modeling, and image processing. By assessing the use of intelligent and adaptive techniques for medical diagnosis and therapy, this guide promotes further research in this area of “techno-medicine.” It provides researchers and clinicians with the tools and processes that are leading to the invaluable use

of intelligent systems in early diagnoses and effective treatment.

The book is a collection of high-quality peer-reviewed research papers presented in the first International Conference on Signal, Networks, Computing, and Systems (ICSNCS 2016) held at Jawaharlal Nehru University, New Delhi, India during February 25–27, 2016. The book is organized in to two volumes and primarily focuses on theory and applications in the broad areas of communication technology, computer science and information security. The book aims to bring together the latest scientific research works of academic scientists, professors, research scholars and students in the areas of signal, networks, computing and systems detailing the practical challenges encountered and the solutions adopted.

This book provides an introduction to fuzzy logic approaches useful in image processing. The authors start by introducing image processing tasks of low and medium level such as thresholding, enhancement, edge detection, morphological filters, and segmentation and shows how fuzzy logic approaches apply. The book is divided into two parts. The first includes vagueness and ambiguity in digital images, fuzzy image processing, fuzzy rule based systems, and fuzzy clustering. The second part includes applications to image processing, image thresholding, color contrast enhancement,

edge detection, morphological analysis, and image segmentation. Throughout, they describe image processing algorithms based on fuzzy logic under methodological aspects in addition to applicative aspects. Implementations in java are provided for the various applications.

This book constitutes the thoroughly refereed proceedings of the 14th International Conference on Advanced Concepts for Intelligent Vision Systems, ACIVS 2012, held in Brno, Czech Republic, in September 2012. The 46 revised full papers were carefully selected from 81 submissions and deal with image analysis and computer vision with a focus on detection, recognition, tracking and identification.

Color perception plays an important role in object recognition and scene understanding both for humans and intelligent vision systems. Recent advances in digital color imaging and computer hardware technology have led to an explosion in the use of color images in a variety of applications including medical imaging, content-based image retrieval, biometrics, watermarking, digital inpainting, remote sensing, visual quality inspection, among many others. As a result, automated processing and analysis of color images has become an active area of research, to which the large number of publications of the past two decades bears witness. The multivariate nature of color image data presents new challenges for researchers and practitioners as

the numerous methods developed for single channel images are often not directly applicable to multichannel ones. The goal of this volume is to summarize the state-of-the-art in the early stages of the color image processing pipeline.

Image Restoration: Fundamentals and Advances responds to the need to update most existing references on the subject, many of which were published decades ago. Providing a broad overview of image restoration, this book explores breakthroughs in related algorithm development and their role in supporting real-world applications associated with various scientific and engineering fields. These include astronomical imaging, photo editing, and medical imaging, to name just a few. The book examines how such advances can also lead to novel insights into the fundamental properties of image sources. Addressing the many advances in imaging, computing, and communications technologies, this reference strikes just the right balance of coverage between core fundamental principles and the latest developments in this area. Its content was designed based on the idea that the reproducibility of published works on algorithms makes it easier for researchers to build on each other's work, which often benefits the vitality of the technical community as a whole. For that reason, this book is as experimentally reproducible as possible. Topics covered include: Image denoising

and deblurring Different image restoration methods and recent advances such as nonlocality and sparsity Blind restoration under space-varying blur Super-resolution restoration Learning-based methods Multi-spectral and color image restoration New possibilities using hybrid imaging systems Many existing references are scattered throughout the literature, and there is a significant gap between the cutting edge in image restoration and what we can learn from standard image processing textbooks. To fill that need but avoid a rehash of the many fine existing books on this subject, this reference focuses on algorithms rather than theories or applications. Giving readers access to a large amount of downloadable source code, the book illustrates fundamental techniques, key ideas developed over the years, and the state of the art in image restoration. It is a valuable resource for readers at all levels of understanding.

This long-established and well-received monograph offers an integral view of image processing - from image acquisition to the extraction of the data of interest – written by a physical scientists for other scientists. Supplements discussion of the general concepts is supplemented with examples from applications on PC-based image processing systems and ready-to-use implementations of important algorithms. Completely revised and extended, the most notable extensions being a detailed discussion

on random variables and fields, 3-D imaging techniques and a unified approach to regularized parameter estimation.

This book constitutes the refereed proceedings of the 12th Iberoamerican Congress on Pattern Recognition, CIARP 2007, held in Valparaiso, Chile, November 13-16, 2007. The 97 revised full papers presented together with four keynote articles were carefully reviewed and selected from 200 submissions. The papers cover ongoing research and mathematical methods for pattern recognition, image analysis, and applications in areas such as computer vision, robotics, industry and health.

Nonlinear signal and image processing methods are fast emerging as an alternative to established linear methods for meeting the challenges of increasingly sophisticated applications. Advances in computing performance and nonlinear theory are making nonlinear techniques not only viable, but practical. This book details recent advances in nonl

Advances in Imaging and Electron Physics merges two long-running serials-Advances in Electronics and Electron Physics and Advances in Optical and Electron Microscopy. This series features extended articles on the physics of electron devices (especially semiconductor devices), particle optics at high and low energies, microlithography, image science and digital image processing, electromagnetic wave propagation, electron microscopy, and the

computing methods used in all these domains.

This book constitutes the refereed proceedings of the 11th Iberoamerican Congress on Pattern Recognition, CIARP 2006, held in Cancun, Mexico in November 2006. The 99 revised full papers presented together with three keynote articles were carefully reviewed and selected from 239 submissions. The papers cover ongoing research and mathematical methods.

Color Image Processing: Methods and Applications embraces two decades of extraordinary growth in the technologies and applications for color image processing. The book offers comprehensive coverage of state-of-the-art systems, processing techniques, and emerging applications of digital color imaging. To elucidate the significant progress in specialized areas, the editors invited renowned authorities to address specific research challenges and recent trends in their area of expertise. The book begins by focusing on color fundamentals, including color management, gamut mapping, and color constancy. The remaining chapters detail the latest techniques and approaches to contemporary and traditional color image processing and analysis for a broad spectrum of sophisticated applications, including: Vector and semantic processing Secure imaging Object recognition and feature detection Facial and retinal image analysis Digital camera image processing Spectral and superresolution imaging Image and video colorization Virtual restoration of artwork Video shot segmentation and surveillance Color Image Processing: Methods and Applications is a versatile resource that can be used as a graduate textbook or as

stand-alone reference for the design and the implementation of various image and video processing tasks for cutting-edge applications. This book is part of the Digital Imaging and Computer Vision series.

The excellently received call for papers of the 13th Scandinavian Conference on Image Analysis, June 29–July 2 (SCIA 2003) resulted in the selected articles of this proceedings. Additionally the volume also contains invited contributions from – Ivar Austvoll, Stavanger University College (NO), – Lars B? a? ath, Halmstad University (SE), – Ewert Bengtsson, Uppsala University (SE), – Rasmus Larsen, Technical University of Denmark (DK), – Jussi Parkkinen, University of Joensuu (FI), – Pietro Perona, California Institute of Technology (US) which brings the total number of articles to 152. The theme of the papers are dominated by the categories – Feature extraction – Depth and surface – Medical image processing – Shape analysis – Segmentation and spatial grouping – Coding and representation – Motion analysis – Texture analysis – Color analysis – Indexing and categorization which also represent the topical groupings of this book. The particularly strong response to the feature extraction, depth and surface, and medical image processing themes makes us believe that these areas are c- rently expansive, partly because of the rich set of problems which remain to be addressed.

Color Image ProcessingMethods and ApplicationsCRC Press

This book constitutes the refereed proceedings of the 14th Iberoamerican Congress on Pattern Recognition, CIARP 2009, held in Guadalajara, Mexico, in November

2009. The 64 revised full papers presented together with 44 posters were carefully reviewed and selected from 187 submissions. The papers are organized in topical sections on image coding, processing and analysis; segmentation, analysis of shape and texture; geometric image processing and analysis; analysis of signal, speech and language; document processing and recognition; feature extraction, clustering and classification; statistical pattern recognition; neural networks for pattern recognition; computer vision; video segmentation and tracking; robot vision; intelligent remote sensing, imagery research and discovery techniques; intelligent computing for remote sensing imagery; as well as intelligent fusion and classification techniques.

This useful textbook/reference presents an accessible primer on the fundamentals of image texture analysis, as well as an introduction to the K-views model for extracting and classifying image textures. Divided into three parts, the book opens with a review of existing models and algorithms for image texture analysis, before delving into the details of the K-views model. The work then concludes with a discussion of popular deep learning methods for image texture analysis. Topics and features: provides self-test exercises in every chapter; describes the basics of image texture, texture features, and image texture classification and segmentation; examines a selection of widely-used methods for measuring and extracting texture features, and various algorithms for texture classification; explains the concepts of dimensionality reduction and sparse

representation; discusses view-based approaches to classifying images; introduces the template for the K-views algorithm, as well as a range of variants of this algorithm; reviews several neural network models for deep machine learning, and presents a specific focus on convolutional neural networks. This introductory text on image texture analysis is ideally suitable for senior undergraduate and first-year graduate students of computer science, who will benefit from the numerous clarifying examples provided throughout the work.

This book constitutes the refereed proceedings of the 11th International Conference on Advanced Concepts for Intelligent Vision Systems, ACIVS 2009, held in Bordeaux, France in September/October 2009. The 43 revised full papers and 25 posters presented were carefully reviewed and selected from 115 submissions. The papers are organized in topical sections on technovision, fundamental mathematical techniques, image processing, coding and filtering, image and video analysis, computer vision, tracking, color, multispectral and special-purpose imaging, medical imaging, and biometrics.