Fundamentals Of Digital Image Processing Anil K Jain

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Real-Time Optical Information Processing Bahram Javidi 2012-12-02 Real-Time Optical Information Processing covers the most recent developments in optical information processing, pattern recognition, neural computing, and materials for devices in optical computing. Intended for researchers and graduate students in signal and information processing with some elementary background in optics, the book provides both theoretical and practical information on the latest in information processing in all its aspects. Leading researchers in the field describe the significant signal processing algorithms architectures in optics as well as basic hardware concepts, such as the fundamentals of spatial light modulators. Each chapter begins with a review of basic concepts and follows with a discussion of recent advances in the field. A complete bibliography on the fundamentals of each topic is also included to aid the reader. Contributors are among the leading researchers in the area Chapters begin with reviews of basic concepts Complete bibliographical information is included

Fundamentals of Digital Image Processing Anil K. Jain 1989 Two-Dimensional Systems and Mathematical Preliminaries - Image Perception - Image Sampling and Quantization - Image Transforms - Image Representation by Stochastic Models - Image Enhancement - Image Filtering and Restoration - Image Analysis and Computer Vision - Image Reconstruction From Projections - Image Data Compression.

INFORMATION TECHNOLOGY AJOY KUMAR RAY 2004-01-01 This comprehensive yet accessible text provides a good introduction to the fundamental concepts of Information Technology and skillfully elaborates on their applications, covering in the process the entire spectrum of IT related topics. Organized into three parts, the book offers an insightful analysis of the subject, explaining the concepts through suitable illustrations. Part I covers basic issues and concepts of Internet and the techniques of acquiring, storing, structuring and managing information that may involve images, text files and video data. The reader is exposed to both centralized and distributed database systems. Part II deals with the core topics in developing information systems which are based on audio and speech compression, multimedia communication techniques, and soft computing for analysis and interpretation of data. Part III focusses on a number of application areas-as remote sensing, telemedicine, e-commerce, cybermediary and rural development-besides the traditional engineering disciplines, highlighting their social impacts. The book is intended for undergraduate and postgraduate students of information technology, computer science as well as electronics and electrical communication engineering. It should also serve as an excellent reference for professionals in the IT field. Key Features: Discusses in detail the theoretical basis behind a web graph. Deals with security issues of computer networks and their implications in an easy-to-understand manner. Contains more than 30 projects (with useful hints) that students of various IT courses would find interesting to work on. Three chapters are exclusively devoted to different aspects of database management and data mining systems.

Advanced Image Acquisition, Processing Techniques and Applications Dimitrios Ventzas 2012-03-14 "Advanced Image Acquisition, Processing Techniques and Applications" is the first book of a series that provides image processing principles and practical software implementation on a broad range of applications. The book integrates material from leading researchers on Applied Digital Image Acquisition and Processing. An important feature of the book is its emphasis on software tools and scientific computing in order to enhance results and arrive at problem solution.

Handbook of Fingerprint Recognition Davide Maltoni 2009-04-21 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.

Mathematical Problems in Image Processing Gilles Aubert 2008-04-06 Partial differential equations and variational methods were introduced into image processing about 15 years ago, and intensive research has been carried out since then. The main goal of this work is to present the variety of image analysis applications and the precise mathematics involved. It is intended for two audiences. The first is the mathematical community, to show the contribution of mathematics to this domain and to highlight some unresolved theoretical questions. The second is the computer vision community, to present a clear, self-contained, and global overview of the mathematics involved in image processing problems. The book is divided into five main parts. Chapter 1 is a detailed overview. Chapter 2 describes and illustrates most of the mathematical notions found throughout the work. Chapters 3 and 4 examine how PDEs and variational methods can be successfully applied in image restoration and segmentation processes. Chapter 5, which is more applied, describes some challenging computer vision problems, such as sequence analysis or classification. This book will be useful to researchers and graduate students in mathematics and computer vision.

Intelligent Communication and Computational Technologies Yu-Chen Hu 2017-10-24 The book includes insights that reflect the advances in the field of Internet of Things from upcoming researchers and leading academicians across the globe. It contains the high-quality peer-reviewed papers of 'International Conference on Internet of Things for Technological Development (IoT4TD 2017)', held at Kadi Sarva Vishvavidyalaya, Gandhinagar, Gujarat, India during April 1-2, 2017. The book covers variety of topics such as Internet of things, Intelligent Image Processing, Networks and Mobile Communications, Big Data and Cloud. The book is

helpful for the perspective readers' from computer industry and academia to derive the advances of next generation communication and computational technology and shape them into real life applications.

A Computational Approach to Digital Chinese Painting and Calligraphy Songhua Xu 2009-05-12 "A Computational Approach to Digital Chinese Painting and Calligraphy" is a technical book on computer science and its applications in the arts. It focuses on Oriental digital arts, in particular Chinese arts and painting, offering a multi-disciplinary treatment from the angles of computer graphics, interactive techniques, human-computer interaction, and artificial intelligence. The book also discusses the unique difficulties and challenges of using the computer to produce Oriental arts, including research results by the authors and their lessons and engineering experiences behind these efforts. Songhua Xu is a computer scientist of Zhejiang University and Yale University, as well as an honorary researcher of the University of Hong Kong. Francis C.M. Lau is Professor at the University of Hong Kong where he leads the Systems Research Group in the Department of Computer Science. Yunhe Pan is Professor of Computer Science at Zhejiang University as well as Deputy President of Chinese Academy of Engineering.

Proceedings 1995 Symposium on Document Image Understanding Technology David Doermann 1995-10

A Guide to Outcome Modeling In Radiotherapy and Oncology Issam El Naqa 2018-04-19 This book explores outcome modeling in cancer from a data-centric perspective to enable a better understanding of complex treatment response, to guide the design of advanced clinical trials, and to aid personalized patient care and improve their quality of life. It contains coverage of the relevant data sources available for model construction (panomics), ranging from clinical or preclinical resources to basic patient and treatment characteristics, medical imaging (radiomics), and molecular biological markers such as those involved in genomics, proteomics and metabolomics. It also includes discussions on the varying methodologies for predictive model building with analytical and data-driven approaches. This book is primarily intended to act as a tutorial for newcomers to the field of outcome modeling, as it includes in-depth how-to recipes on modeling artistry while providing sufficient instruction on how such models can approximate the physical and biological realities of clinical treatment. The book will also be of value to seasoned practitioners as a reference on the varying aspects of outcome modeling and their current applications. Features: Covers top-down approaches applying statistical, machine learning, and big data analytics and bottom-up approaches using first principles and multi-scale techniques, including numerical simulations based on Monte Carlo and automata techniques Provides an overview of the available software tools and resources for outcome model development and evaluation, and includes hands-on detailed examples throughout Presents a diverse selection of the common applications of outcome modeling in a wide variety of areas: treatment planning in radiotherapy, chemotherapy and immunotherapy, utility-based and biomarker applications, particle therapy modeling, oncological surgery, and the design of adaptive and SMART clinical trials

Konstruktion und Implementierung eines neuen Verfahrens zur Kompression von Bilddaten Jörg Haber 1999

Machine Learning and Image Interpretation Terry Caelli 2013-11-21 In this groundbreaking new volume, computer researchers discuss the development of technologies and specific systems that can interpret data with respect to domain knowledge. Although the chapters each illuminate different aspects of image interpretation, all utilize a common approach - one that asserts such interpretation must involve perceptual learning in terms of automated knowledge acquisition and application, as well as feedback and consistency checks between encoding, feature extraction, and the known knowledge structures in a given application domain. The text is profusely illustrated with numerous figures and tables to reinforce the concepts discussed.

Mathematical and computational Models S. Arulmozhi 2003

Multispectral Image Processing and Pattern Recognition Jun Shen 2001

Ein System zur automatischen Auswertung von Ultraschall-Messdaten Malte Ahrholdt 2005

Handbook of Biomedical Image Analysis David Wilson 2006-10-28 Handbook of Biomedical Image Analysis: Segmentation Models (Volume I) is dedicated to the segmentation of complex shapes from the field of imaging sciences using different mathematical techniques. This volume is aimed at researchers and educators in imaging sciences, radiological imaging, clinical and diagnostic imaging, physicists covering different medical imaging modalities, as well as researchers in biomedical engineering, applied mathematics, algorithmic development, computer vision, signal processing, computer graphics and multimedia in general, both in academia and industry . Key Features: - Principles of intra-vascular ultrasound (IVUS) - Principles of positron emission tomography (PET) - Physical principles of magnetic resonance angiography (MRA). - Basic and advanced level set methods - Shape for shading method for medical image analysis - Wavelet transforms and other multi-scale analysis functions - Three dimensional deformable surfaces - Level Set application for CT lungs, brain MRI and MRA volume segmentation - Segmentation of incomplete tomographic medical data sets - Subjective level sets for missing boundaries for segmentation

Systems Approach to Social Engineering. 1999

Advances in Computing, Control and Communication Technology R.R. Tewari 2016-07-20 This book contains proceedings of the International Conference on Advances in Computing, Control and Communication Technology (IAC3T) organized by Centre for Computer Education, Institute of Professional Studies, University of Allahabad during March 25-27, 2016 at Allahabad. A total of 138 full papers were submitted to the conference, out of which about 40 papers were accepted and finally 35 papers were presented during the conference. This book contains these papers. The conference was a major multidisciplinary conference organized with the objective to expose the participants to the emerging trends in the area of computing, control and communication technology. The conference intended to serve as a major international forum for the exchange of ideas and to provide an interactive platform to the students (budding engineers), engineers, researchers and academicians to exchange their innovative ideas and experiences in the area of advancements in computing, control and communication technology.

Point-Based Graphics Markus Gross 2011-05-04 The polygon-mesh approach to 3D modeling was a huge advance, but today its limitations are clear. Longer render times for increasingly complex images effectively cap image complexity, or else stretch budgets and schedules to the breaking point. Comprised of contributions from leaders in the development and application of this technology, Point-Based Graphics examines it from all angles, beginning with the way in which the latest photographic and scanning devices have enabled modeling based on true geometry, rather than appearance. From there, it's on to the methods themselves. Even though point-based graphics is in its infancy, practitioners have already established many effective, economical techniques for achieving all the major effects associated with traditional 3D Modeling and rendering. You'll learn to apply these techniques, and you'll also learn how to create your own. The final chapter demonstrates how to do this using Pointshop3D, an open-source tool for developing new point-based algorithms. The first book on a major development in computer graphics by the pioneers in the field Shows how 3D images can be manipulated as easily as 2D images are with Photoshop

Experimental Environments for Computer Vision and Image Processing H I Christensen 1994-03-16 To fully appreciate new

methods developed in the area of machine vision it is necessary to have facilities which allow experimental verification of such methods. Experimental research is typically a very expensive task in terms of manpower, and consequently it is desirable to adopt standard facilities/methods which allow more efficient experimental investigations. In this volume a range of different experimental environments which facilitate construction and integration of machine vision systems is described. The environments presented cover areas such as robotics, research in individual machine vision methods, system integration, knowledge representation, and distributed computing. The set of environments covered include commercial systems, public domain software and laboratory prototype, showing the diversity of the problem of experimental research in machine vision and providing the reader with an overview of the area. Contents:Prototyping, Visualization and Simulation Using the Application Visualization System (C J Westelius et al.)Vision as Process: Integration and Control of a Real Time Active Vision System (J L Crowley & H Christensen)A Modular Control Architecture for Real-Time Synchronous and Asynchronous Systems (P L Butler & J P Jones)Integrating Visual Procedures for Mobile Perception (B Draper et al.)The Vision Programmers Workbench (VIPWOB) (N O S Kirkeby & H I Christensen)Module Network Tool (L Olsson)Object-Oriented Communication in Image Processing Systems (H Winwroth)and other papers Readership: Computer scientists and engineers. keywords:

Review of Progress in Quantitative Nondestructive Evaluation Donald O. Thompson 2012-12-06 These Proceedings, consisting of Parts A and B, contain the edited versions of most of the papers presented at the annual Review of Progress in Quantitative Nondestructive Evaluation held at the University of California San Diego, in La Jolla, California on July 19- July 24, 1992. The Review was organized by the Center for NDE at Iowa State University and the Ames Laboratory of the USDOE in cooperation with a number of organizations including the Air Force Wright Laboratory Materials Directorate, the American Society for Nondestructive Testing, the Center for NDE at Johns Hopkins University, the Department of Energy, the Federal Aviation Administration, the National Institute of Standards and Technology, the National Science Foundation IndustryIUniversity Cooperative Research Centers, and the Working Group in Quantitative NDE. This year's Review of Progress in QNDE was attended by approximately 475 participants from the U. S. and many foreign countries who presented over 380 papers. With such a large volume of work to review, the meeting was divided into 36 sessions with as many as four sessions running concurrently. The Review covered all phases of NDE research and development from fundamental investigations to engineering applications or inspection systems, and it included all methods of inspection science from acoustics to x-rays. During the last twenty years, the participants of the Review have contributed to its steady growth. Thanks to their efforts, the Review is today one of the largest and most significant gatherings of NDE researchers and engineers anywhere in the world.

Science and Technology in Historic Preservation Ray A. Williamson 2012-12-06 Technology transfer has played an increasingly important role in historic preservation during the latter half of the twentieth century, a situation attested to by the undertaking of an important congressional study in 1986 that assessed the role of federal agencies in the field. In this book leading researchers update the earlier findings and contribute state-of-the-art reviews and evaluations of technological progress in their areas of expertise.

Abbildung mit Millimeterwellen für die Personenkontrolle Sebastian Bertl 2009 In diesem Beitrag werden Methoden zur Abbildung von Gegenständen mit Millimeterwellen (MMW) analysiert und anhand eines Messsystems umgesetzt. Ein mögliches Anwendungsgebiet ist die Personenkontrolle in sicherheitskritischen Bereichen.Um das Streuverhalten von Gegenständen im MMW-Bereich in verschiedenen Messgeometrien genauer beschreiben zu können, wird mit Hilfe numerischer Berechnungsverfahren u.a. das Streuverhalten dielektrischer Körper analysiert. Ausgehend von der reinen Fourierraumbetrachtung werden Methoden vorgestellt, welche unter Berücksichtigung des Streuverhaltens der beleuchteten Objekte kombinierte Aussagen zu Auflösungsvermögen und Sichtbarkeit von Objekten zulassen.Zur messtechnischen Bestimmung der gestreuten Felder wird ein multistatisches Messsystem mit zirkularer synthetischer Apertur und interferometrischer Erweiterung vorgestellt. Die Rekonstruktionsergebnisse zeigen, dass bei schräger Beleuchtung alle Inhomogenitäten, sowohl material- als auch strukturbedingt, sowie Spiegelpunkte lokalisiert werden können.

A Computational Introduction to Digital Image Processing Alasdair McAndrew 2015-10-28 Highly Regarded, Accessible Approach to Image Processing Using Open-Source and Commercial Software A Computational Introduction to Digital Image Processing, Second Edition explores the nature and use of digital images and shows how they can be obtained, stored, and displayed. Taking a strictly elementary perspective, the book only covers topics that involve simple mathematics yet offer a very broad and deep introduction to the discipline. New to the Second Edition This second edition provides users with three different computing options. Along with MATLAB®, this edition now includes GNU Octave and Python. Users can choose the best software to fit their needs or migrate from one system to another. Programs are written as modular as possible, allowing for greater flexibility, code reuse, and conciseness. This edition also contains new images, redrawn diagrams, and new discussions of edge-preserving blurring filters, ISODATA thresholding, Radon transform, corner detection, retinex algorithm, LZW compression, and other topics. Principles, Practices, and Programming Based on the author's successful image processing courses, this bestseller is suitable for classroom use or self-study. In a straightforward way, the text illustrates how to implement imaging techniques in MATLAB, GNU Octave, and Python. It includes numerous examples and exercises to give students hands-on practice with the material.

Computational Science and Engineering Arpan Deyasi 2016-12-19 Computational Science and Engineering contains peer-reviewed research presented at the International Conference on Computational Science and Engineering (RCC Institute of Information Technology, Kolkata, India, 4-6 October 2016). The contributions cover a wide range of topics: - electronic devices - photonics - electromagnetics - soft computing - artificial intelligence - modern communication systems Focussing on strong theoretical and methodological approaches and applications, Computational Science and Engineering will be of interest to academia and professionals involved or interested in the above mentioned domains.

ECAI 2016 G.A. Kaminka 2016-08-24 Artificial Intelligence continues to be one of the most exciting and fast-developing fields of computer science. This book presents the 177 long papers and 123 short papers accepted for ECAI 2016, the latest edition of the biennial European Conference on Artificial Intelligence, Europe's premier venue for presenting scientific results in AI. The conference was held in The Hague, the Netherlands, from August 29 to September 2, 2016. ECAI 2016 also incorporated the conference on Prestigious Applications of Intelligent Systems (PAIS) 2016, and the Starting AI Researcher Symposium (STAIRS). The papers from PAIS are included in this volume; the papers from STAIRS are published in a separate volume in the Frontiers in Artificial Intelligence and Applications (FAIA) series. Organized by the European Association for Artificial Intelligence (EurAI) and the Benelux Association for Artificial Intelligence (BNVKI), the ECAI conference provides an opportunity for researchers to present and hear about the very best research in contemporary AI. This proceedings will be of interest to all those seeking an overview of

the very latest innovations and developments in this field.

Computer Vision and Image Processing Manas Kamal Bhuyan 2019-11-05 The book familiarizes readers with fundamental concepts and issues related to computer vision and major approaches that address them. The focus of the book is on image acquisition and image formation models, radiometric models of image formation, image formation in the camera, image processing concepts, concept of feature extraction and feature selection for pattern classification/recognition, and advanced concepts like object classification, object tracking, image-based rendering, and image registration. Intended to be a companion to a typical teaching course on computer vision, the book takes a problem-solving approach.

Segmentierung von Video-Bildfolgen durch adaptive Farbklassifikation Walter Hafner 1999

Image Processing Artyom M. Grigoryan 2018-09-03 Focusing on mathematical methods in computer tomography, Image Processing: Tensor Transform and Discrete Tomography with MATLAB® introduces novel approaches to help in solving the problem of image reconstruction on the Cartesian lattice. Specifically, it discusses methods of image processing along parallel rays to more quickly and accurately reconstruct images from a finite number of projections, thereby avoiding overradiation of the body during a computed tomography (CT) scan. The book presents several new ideas, concepts, and methods, many of which have not been published elsewhere. New concepts include methods of transferring the geometry of rays from the plane to the Cartesian lattice, the point map of projections, the particle and its field function, and the statistical model of averaging. The authors supply numerous examples, MATLAB®-based programs, end-of-chapter problems, and experimental results of implementation. The main approach for image reconstruction proposed by the authors differs from existing methods of back-projection, iterative reconstruction, and Fourier and Radon filtering. In this book, the authors explain how to process each projection by a system of linear equations, or linear convolutions, to calculate the corresponding part of the 2-D tensor or paired transform of the discrete image. They then describe how to calculate the inverse transform to obtain the reconstruction. The proposed models for image reconstruction from projections are simple and result in more accurate reconstructions. Introducing a new theory and methods of image reconstruction, this book provides a solid grounding for those interested in further research and in obtaining new results. It encourages readers to develop effective applications of these methods in CT.

Convolutional Neural Networks in Visual Computing Ragav Venkatesan 2017-10-23 This book covers the fundamentals in designing and deploying techniques using deep architectures. It is intended to serve as a beginner's guide to engineers or students who want to have a quick start on learning and/or building deep learning systems. This book provides a good theoretical and practical understanding and a complete toolkit of basic information and knowledge required to understand and build convolutional neural networks (CNN) from scratch. The book focuses explicitly on convolutional neural networks, filtering out other material that co-occur in many deep learning books on CNN topics.

Computational Intelligence And Multimedia Applications'98 - Proceedings Of The 2nd International Conference Henry Selvaraj 1998-01-05 This book presents four keynote speeches, eight invited papers and over a hundred papers selected from 180 submissions from more than 25 countries around the world. The contributions investigate applications of computational intelligence and multimedia in various areas, such as artificial intelligence, artificial neural networks, pattern recognition, evolutionary computations, logic synthesis, fuzzy logic, image processing, image retrieval, virtual reality, etc.

Advances in Computer Vision and Information Technology K. V. Kale 2013-12-30 The latest trends in information technology represent a new intellectual paradigm for scientific exploration and the visualization of scientific phenomena. This title covers the emerging technologies in the field. Academics, engineers, industrialists, scientists and researchers engaged in teaching, and research and development of computer science and information technology will find the book useful for their academic and research work.

Parallel Processing on VLSI Arrays Josef A. Nossek 2012-12-06 Guest Editor: JOSEF A. NOSSEK This is a special issue of the Journal of VLSI Signal Processing comprising eight contributions invited for publica tion on the basis of novel work presented in a special session on "Parallel Processing on VLSI Arrays" at the International Symposium on Circuits and Systems (ISCAS) held in New Orleans in May 1990. Massive parallelism to cope with high-speed requirements stemming from real-time applications and the restrictions in architectural and circuit design, such as regularity and local connectedness, brought about by the VLSI technology are the key questions addressed in these eight papers. They can be grouped into three subsections elaborating on: • Simulation of continuous physical systems, i. e. , numerically solving partial differential equations. • Neural architectures for image processing and pattern recognition. • Systolic architectures for implementing regular and irregular algorithms in VLSI technology. The paper by A. Fettweis and O. Nitsche advocates a signal processing approach for the numerical integration of partial differential equations (PD Es). It is based on the principles of multidimensional wave digital filters (MDWDFs) thereby preserving the passivity of energy dissipating physical systems. It is particularly suited for systems of PDEs involving time and finite propagation speed. The basic ideas are explained using Maxwell's equa tions as a vehicle for the derivation of a multidimensional equivalent circuit representing the spatially infinitely extended arrangement with only very few circuit elements.

Face Recognition S. Ramakrishnan 2016-07-06 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.

Artificial Intelligence in Medical Imaging Lia Morra 2019-11-25 This book, written by authors with more than a decade of experience in the design and development of artificial intelligence (AI) systems in medical imaging, will guide readers in the understanding of one of the most exciting fields today. After an introductory description of classical machine learning techniques, the fundamentals of deep learning are explained in a simple yet comprehensive manner. The book then proceeds with a historical perspective of how medical AI developed in time, detailing which applications triumphed and which failed, from the era of computer aided detection systems on to the current cutting-edge applications in deep learning today, which are starting to exhibit on-par performance with clinical experts. In the last section, the book offers a view on the complexity of the validation of artificial intelligence applications for commercial use, describing the recently introduced concept of software as a medical device, as well as good practices and relevant considerations for training and testing machine learning systems for medical use. Open problematics on the validation for public use of systems which by nature continuously evolve through new data is also explored. The book will be of interest to graduate

students in medical physics, biomedical engineering and computer science, in addition to researchers and medical professionals operating in the medical imaging domain, who wish to better understand these technologies and the future of the field. Features: An accessible yet detailed overview of the field Explores a hot and growing topic Provides an interdisciplinary perspective

Visual Form 2001Italy) International Workshop on Visual Form 2001 (Capri 2001-05-16 This book constitutes the refereed proceedings of the 4th International Workshop on Visual Form, IWVF-4, held in Capri, Italy, in May 2001. The 66 revised full papers presented together with seven invited papers were carefully reviewed and selected from 117 submissions. The book covers theoretical and applicative aspects of visual form processing. The papers are organized in topical sections on representation, analysis, recognition, modelling and retrieval, and applications.

DIGITAL IMAGE PROCESSING AND APPLICATIONS V. Chandra Shekhar Rao, Sunkari Venkatramulu & Dr. P. Sammulal 2021-05-05 The influence and impact of digital images on modern society, science, technology and art are tremendous. Image processing has become such a critical component in contemporary science and technology that many tasks would not be attempted without it. It is a truly interdisciplinary subject that draws from synergistic developments involving many disciplines and is used in medical imaging, microscopy, astronomy, computer vision, geology and many other fields. With a few exceptions, the topics of optical information processing and digital information processing are usually covered in different books, written by experts in one ?eld or the other. It is rare that the two topics are both covered in the same volume. This book is an exception to this trend, and is notable in several different aspects, but especially in its breadth of coverage of both topics. It seems very appropriate to have both general topics covered in the same book, for optical processing systems (de?ned broadly) commonly include digital systems to drive the optical system and to post-process the data (example: adaptive-optic systems), while digital processing systems most commonly operate on data that has been gathered by an optical system. As a consequence, sophisticated image-gathering and handling systems today include both types of technology, a merger that grows more complete as time progresses. Indeed, even consumer-oriented devices such as digital cameras are sophisticated systems with optical and digital parts. This is a text for use in a first practical course in image processing and analysis, for final-year undergraduate or first-year graduate students with a background in biomedical engineering, computer science, radiologic sciences or physics. Designed for readers who will become "end users" of digital image processing in the biomedical sciences, it emphasizes the conceptual framework and the effective use of image processing tools and uses mathematics as a tool, minimizing the advanced mathematical development of other textbooks.

Knowledge-Based Intelligent Information and Engineering SystemsRajiv Khosla 2005-08-25 Dear delegates,friendsand membersofthe growingKES professionalcommunity,w- come to the proceedings of the 9th International Conference on Knowledge-Based and IntelligentInformationandEngineeringSystemshostedbyLa TrobeUniversityin M- bourne Australia. The KES conference series has been established for almost a decade, and it cont- ues each year to attract participants from all geographical areas of the world, including Europe, the Americas, Australasia and the Paci?c Rim. The KES conferences cover a wide range of intelligent systems topics. The broad focus of the conference series is the theory and applications of intelligent systems. From a pure research ?eld, intel- gent systems have advanced to the point where their abilities have been incorporated into many business and engineering application areas. KES 2005 provided a valuable mechanism for delegates to obtain an extensive view of the latest research into a range of intelligent-systems algorithms, tools and techniques. The conference also gave de- gates the chance to come into contact with those applying intelligent systems in diverse commercial areas. The combination of theory and practice represented a unique opp- tunity to gain an appreciation of the full spectrum of leading-edge intelligent-systems activity. The papers for KES 2005 were either submitted to invited sessions, chaired and organized by respected experts in their ?elds, or to a general session, managed by an extensive International Program Committee, or to the Intelligent Information Hiding and Multimedia Signal Processing (IIHMSP) Workshop, managed by an International Workshop Technical Committee.

Energy Minimization Methods in Computer Vision and Pattern RecognitionMario Figueiredo 2003-06-30 This volume consists of the 42 papers presented at the International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR2001),whichwasheldatINRIA(InstitutNationaldeRechercheen Informatique et en Automatique) in Sophia Antipolis, France, from September 3 through September 5, 2001. This workshop is the third of a series, which was started with EMMCVPR'97, held in Venice in May 1997, and continued with EMMCVR'99, which took place in York, in July 1999. Minimization problems and optimization methods permeate computer vision (CV), pattern recognition (PR), and many other ?elds of machine intelligence. The aim of the EMMCVPR workshops is to bring together people with research interests in this interdisciplinary topic. Although the subject is traditionally well represented at major international conferences on CV and PR, the EMMCVPR workshops provide a forum where researchers can report their recent work and engage in more informal discussions. We received 70 submissions from 23 countries, which were reviewed by the members of the program committee. Based on the reviews, 24 papers were - cepted for oral presentation and 18 for poster presentation. In this volume, no distinction is made between papers that were presented orally or as posters. The book is organized into ?ve sections, whose topics coincide with the ?ve s- sionsoftheworkshop:"ProbabilisticModelsandEstimation","ImageModelling and Synthesis", "Clustering, Grouping, and Segmentation", "Optimization and Graphs", and "Shapes, Curves, Surfaces, and Templates".

Autonome Mobile Systeme 1998Heinz Wörn 2013-03-12 Vor 13 Jahren fand im November 1985 an der Universität Karlsruhe erstmals das Fachgespräch über "Autonome Mobile Systeme" statt. Seither wird es regelmäßig jedes Jahr alternierend einmal in München, Karlsruhe und seit 1994 auch in Stuttgart abgehalten. Diese Tradition entwickelte sich insbesondere durch Forschungs schwerpunkte, Verbundprojekte und Sonderforschungsbereiche, die an diesen Universitäten zu dem Thema autonome Systeme bearbeitet wurden, aktuell laufen oder in Planung sind. Im Dezember 1998 findet das 14. Fachgespräch "Autonome Mobile Systeme" (AMS'98) nunmehr das siebte Mal in Karlsruhe statt. Das Fachgespräch versteht sich als kritisches wissenschaftliches Forum im deutschsprachigen Raum, auf dem Arbeiten aus Universitäten und Fachhochschulen, Forschungseinrichtungen und Firmen auf dem Gebiet der autonomen mobilen Robotersysteme vorgestellt, diskutiert und neue Ideen aufgegriffen werden. Mit Freude können die Veranstalter darauf verweisen, daß auch internationale Gäste in das Fachgespräch eingebunden werden konnten. Bei den bisherigen Fachgesprächen zeigte sich deutlich, daß sich der Begriff der Autonomie von Robotersystemen ständig ändert und von den Anforderungen der jeweiligen Anwendung geprägt wird. Zu Beginn der Fachgesprächsreihe standen autonome Fahrzeuge in industriellen Produktionsbereichen im Vordergrund. Im Jahr 1998 zeigt das Spektrum der Beiträge, daß Autonomie auch ein Grundbestandteil von Straßen-, Gelände- Wasser- und Luftfahrzeugen wird. Die Forschung auf dem Gebiet autonomer mobiler Roboter konzentriert sich zunehmend auf den Bereich Serviceroboter. So wurden auf der Hannover-Messe in diesem Jahr auf dem Gemeinschaftsstand Serviceroboter zahlreiche mobile Plattformen für Roboteranwendungen in unterschiedlichen Dienstleistungsbereichen wie Büro, Hotel, Krankenhaus und gar im privaten Umfeld vorgestellt.