Digital Image Processing Article 2014

Biomedical Signal and Image Processing in Patient Care
Digital Image Processing with Application to Digital Cinema
Image Processing [i.e. Digital Image Processing].
Computational Modeling of Objects Presented in Images: Fundamentals, Methods, and Applications
Principles of Digital Image Processing
Computational Photography
Image and Signal Processing
Digital Image Processing Algorithms and Applications
Introduction to Digital Image Processing
Digital Image Processing
Digital Image Processing
Digital Image Processing: Practical Approach
Fundamentals of Digital Imaging
Fundamentals of Digital Image Processing
Digital Image Processing
Binary Digital Image Processing
Digital Image Processing Methods
Sixth International Conference on Digital Image Processing (ICDIP 2014)
An Introduction to Digital Image Processing
Digital Image Processing
Image Processing and Communications Challenges 5
Computer Imaging
Combinatorial Image Analysis
Digital Image Processing
A Computational Introduction to Digital Image Processing
Feature Dimension Reduction for Content-Based Image Identification
Remote Sensing Digital Image Analysis
Digital Image Processing
Understanding Digital Image Processing
Digital Image Processing with C++
Spatio-temporal Image Analysis for Longitudinal and Time-Series Image Data
Digital Image Processing
2014 4th International Conference on Image Processing Theory, Tools and Applications (IPTA)
Topology of Digital Images
Fundamentals of Digital Image Processing
DIGITAL IMAGE PROCESSING AND APPLICATIONS
Image Processing & Communications Challenges 6
Digital Image Processing

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Biomedical Signal and Image Processing in Patient Care Prentice Hall
Computational photography refers broadly to imaging techniques that enhance or extend the capabilities of digital photography. This new and rapidly developing research field has evolved from computer vision, image processing, computer graphics and applied optics—and numerous commercial products capitalizing on its principles have already appeared in diverse market applications, due to the gradual migration of computational algorithms from computers to imaging devices and software. Computational Photography: Methods and Applications provides a strong, fundamental understanding of theory and methods, and a foundation upon which to build solutions for many of today's most interesting and challenging computational imaging problems. Elucidating cutting-edge advances and applications in digital imaging, camera image processing, and computational photography, with a focus on related research challenges, this book: Describes single capture image fusion technology for consumer digital cameras Discusses the steps in a camera image processing pipeline, such as visual data compression, color correction and enhancement, denoising, demosaicking, super-resolution reconstruction, deblurring, and high dynamic range imaging Covers shadow detection for surveillance applications, camera-driven document rectification, bilateral filtering and its applications, and painterly rendering of digital images Presents machine-learning methods for automatic image colorization and digital face beautification Explores light field acquisition and processing, space-time light field rendering, and dynamic view synthesis with an array of cameras Because of the urgent challenges associated with emerging digital camera applications, image processing methods for computational photography are of paramount importance to research and development in the imaging community. Presenting the work of leading experts, and edited by a renowned authority in digital color imaging and camera image processing, this book considers the rapid developments in this area and addresses very particular research and application problems. It is ideal as a stand-alone professional reference for design and implementation of digital image and video processing tasks, and it can also be used to support graduate courses in computer vision, digital imaging, visual data processing, and computer graphics, among others.
Digital Image Processing with Application to Digital Cinema Elsevier
Computer Imaging: Digital Image Analysis and Processing brings together analysis and processing in a unified framework, providing a valuable foundation for understanding both computer vision and image processing applications. Taking an engineering approach, the text integrates theory with a conceptual and application-oriented style, allowing you to immediately understand how each topic fits into the overall structure of practical application development. Divided into five major parts, the book begins by introducing the concepts and definitions necessary to understand computer imaging. The second part describes image analysis and provides the tools, concepts, and models required to analyze digital images and develop computer vision applications. Part III discusses application areas for the processing of images, emphasizing human visual perception. Part IV delivers the information required to apply a CVIPtools environment to algorithm development. The text concludes with appendices that provide supplemental imaging information and assist with the programming exercises found in each chapter. The author presents topics as needed for understanding each practical imaging model being studied. This motivates the reader to master the topics and also makes the book useful as a reference. The CVIPtools software integrated throughout the book, now in a new Windows version, provides practical examples and encourages you to conduct additional exploration via tutorials and programming exercises provided with each chapter.
Image Processing [i.e. Digital Image Processing]. IGI Global
From the reviews of the first edition: "I recommend this book to anyone seriously engaged in image processing. It will clearly stretch the horizon of some readers and be a good reference for others. This is not just another image processing book; it is a book worth owning and a book worth reading several times ..." #J. Electronic Imaging# This practical guidebook uses the concepts and mathematics familiar to students of the natural sciences to provide them with a working knowledge of modern techniques of digital image processing. It takes readers from basic concepts to current research topics and demonstrates how digital image processing can be used for data gathering in research. Detailed examples of applications on PC-based systems and ready-to-use algorithms enhance the text, as do nearly 200 illustrations (16 in color). The book also includes the most exciting recent advances such as reconstruction of 3-D objects from projections and the analysis of stereo images and image sequences.
Computational Modeling of Objects Presented in Images: Fundamentals, Methods, and Applications Pearson Education India
The SpringerBrief covers fundamentals of digital image processing including image concept, image file formats, creating user interfaces and many practical examples of processing images using C++ and Java. These practical examples include among other creating image histograms, performing lossless image compression, detecting change in colors, similarity-based image retrieval and others. All practical examples are accompanied with an explanation how to create programs and the obtained results. This SpringerBrief can be very useful for the undergraduate courses on image processing, providing students with the basic tools in image analysis and processing. Practitioners and researchers working in this field will also find this research useful.
Principles of Digital Image Processing Taylor & Francis
The multi-billion dollar industry of digital imaging technology is an active research area with applications in our everyday lives in products such as digital cameras, scanners, printers and display systems. This book presents an introduction to the fundamentals of digital imaging, with emphasis on the basic operations of image capture and display of monochrome and colour images. The authors balance the mathematical description of real problems with practical examples. With a colour-plate section and real-world applications, this book is suitable for graduate students

taking courses in digital imaging in electrical engineering and computer science departments. It will also be a useful reference for practitioners in industry.
Computational Photography CRC Press
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.
Image and Signal Processing Springer
This book introduces the fundamental concepts of modern digital image processing. It aims to help the students, scientists, and practitioners to understand the concepts through clear explanations, illustrations and examples. The discussion of the general concepts is supplemented with examples from applications and ready-to-use implementations of concepts in MATLAB®. Program code of some important concepts in programming language 'C' is provided. To explain the concepts, MATLAB® functions are used throughout the book. MATLAB® Version 9.3 (R2017b), Image Acquisition Toolbox Version 5.3 (R2017b), Image Processing Toolbox, Version 10.1 (R2017b) have been used to create the book material. Meant for students and practicing engineers, this book provides a clear, comprehensive and up-to-date introduction to Digital Image Processing in a pragmatic manner.
Digital Image Processing Algorithms and Applications Wiley
This book constitutes the thoroughly refereed post-conference proceedings of the Third International Workshop on Spatio-temporal Image Analysis for Longitudinal and Time-Series Image Data, STIA 2014, held in conjunction with MICCAI 2014 in Boston, MA, USA, in September 2014. The 7 papers presented in this volume were carefully reviewed and selected from 15 submissions. They are organized in topical sections named: longitudinal registration and shape modeling, longitudinal modeling, reconstruction from longitudinal data, and 4D image processing.
Introduction to Digital Image Processing Springer
In healthcare systems, medical devices help physicians and specialists in diagnosis, prognosis, and therapeutics. As research shows, validation of medical devices is significantly optimized by accurate signal processing. Biomedical Signal and Image Processing in Patient Care is a pivotal reference source for progressive research on the latest development of applications and tools for healthcare systems. Featuring extensive coverage on a broad range of topics and perspectives such as telemedicine, human machine interfaces, and multimodal data fusion, this publication is ideally designed for academicians, researchers, students, and practitioners seeking current scholarly research on real-life technological inventions.
Digital Image Processing Chapman & Hall/CRC
Digital Image Processing with C++ presents the theory of digital image processing, and implementations of algorithms using a dedicated library. Processing a digital image means transforming its content (denoising, stylizing, etc.), or extracting information to solve a given problem (object recognition, measurement, motion estimation, etc.). This book presents the mathematical theories underlying digital image processing, as well as their practical implementation through examples of algorithms implemented in the C++ language, using the free and easy-to-use CImg library. Chapters cover in a broad way the field of digital image processing and proposes practical and functional implementations of each method theoretically described. The main topics covered include filtering in spatial and frequency domains, mathematical morphology, feature extraction and applications to segmentation, motion estimation, multispectral image processing and 3D visualization. Students or developers wishing to discover or specialize in this discipline, teachers and researchers wishing to quickly prototype new algorithms, or develop courses, will all find in this book material to discover image processing or deepen their knowledge in this field.
Digital Image Processing Horizon Books (A Division of Ignited Minds Edutech P Ltd)
The subject of digital image processing has migrated from a graduate to a junior or senior level course as students become more proficient in mathematical background earlier in their college education. With that in mind, Introduction to Digital Image Processing is simpler in terms of mathematical derivations and eliminates derivations of advanced s
Digital Image Processing: Practical Approach John Wiley & Sons
This volume constitutes the refereed proceedings of the 16th International Workshop on Combinatorial Image Analysis, IWCIA 2014, held in Brno, Czech Republic, in May 2014. The 20 revised full papers and 3 invited papers presented were carefully reviewed and selected from numerous submissions. The topics covered include discrete geometry and topology in imaging science, new results in image representation, segmentation, grouping, and reconstruction, medical image processing.
Fundamentals of Digital Imaging CRC Press
A comprehensive digital image processing book that reflects new trends in this field such as document image compression and data compression standards. The book includes a complete rewrite of image data compression, a new chapter on image analysis, and a new section on image morphology.
Fundamentals of Digital Image Processing CRC Press
Annotation, The international Conference on Image Processing Theory, Tools and Applications IPTA 14 aims at gathering challenging international researchers, innovators, educators, and practitioners in image processing theory and tools, for attending extensive educational high level materials, exchanging their experiences and discussing future orientations To address these challenges and explore these new opportunities, the conference aims to provide an excellent forum for all experts in these areas to meet and discuss various important issues on image

processing theory, tools and applications
Digital Image Processing Addison Wesley Publishing Company
Highly Regarded, Accessible Approach to Image Processing Using Open-Source and Commercial SoftwareA 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
Binary Digital Image Processing Springer
Learn about state-of-the-art digital image processing without the complicated math and programming... You don’t have to be a preeminent computer scientist or engineer to get the most out of today’s digital image processing technology. Whether you’re working in medical imaging, machine vision, graphic arts, or just a hobbyist working at home, this book will get you up and running in no time, with all the technical know-how you need to perform sophisticated image processing operations. Designed for end users, as well as an introduction for system designers, developers, and technical managers, this book doesn’t bog you down in complex mathematical formulas or lines of programming code. Instead, in clear down-to-earth language supplemented with numerous example images and the ready-to-run digital image processing program on the enclosed disk, it schools you, step-by-step, in essential digital image processing concepts, principles, techniques, and technologies. Disk contains sample image files and a ready-to-run digital image processing program that lets you do as you learn detailed step-by-step guides to the most commonly used operations, including references to real-world applications and implementations hundreds of before and after images that help illustrate all the operations described comprehensive coverage of current hardware and the best methods for acquiring, displaying, and processing digital images
Digital Image Processing Methods Springer
With the widespread availability of satellite and aircraft remote sensing image data in digital form, and the ready access most remote sensing practitioners have to computing systems for image interpretation, there is a need to draw together the range of digital image processing procedures and methodologies commonly used in this field into a single treatment. It is the intention of this book to provide such a function, at a level meaningful to the non-specialist digital image analyst, but in sufficient detail that algorithm limitations, alternative procedures and current trends can be appreciated. Often the applications specialist in remote sensing wishing to make use of digital processing procedures has had to depend upon either the mathematically detailed treatments of image processing found in the electrical engineering and computer science literature, or the sometimes necessarily superficial treatments given in general texts on remote sensing. This book seeks to redress that situation. Both image enhancement and classification techniques are covered making the material relevant in those applications in which photointerpretation is used for information extraction and in those wherein information is obtained by classification.
Sixth International Conference on Digital Image Processing (ICDIP 2014) CRC Press
Avoiding heavy mathematics and lengthy programming details, Digital Image Processing: An Algorithmic Approach with MATLAB presents an easy methodology for learning the fundamentals of image processing. The book applies the algorithms using MATLAB, without bogging down students with syntactical and debugging issues.One chapter can typically be compl
An Introduction to Digital Image Processing Springer Science & Business Media
This unique reference presents in-depth coverage of the latest methods and applications of digital image processing describing various computer architectures ideal for satisfying specific image processing demands.
Digital Image Processing CRC Press
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 field 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 (defined 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.