

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.

Introduction to Color Imaging Science

Image Analysis

Human and Computer Vision Applications with CVIPtools, Second Edition

Concepts, Algorithms, and Scientific Applications

Feature Extraction and Image Processing

Image processing-from basics to advanced applications Learn how to master image processing and compression with this outstanding state-of-the-art reference. From fundamentals to sophisticated applications, Image Processing: Principles and Applications covers multiple topics and provides a fresh perspective on future directions and innovations in the field, including:

- * Image transformation techniques, including wavelet transformation and developments
- * Image enhancement and restoration, including noise modeling and filtering
- * Segmentation schemes, and classification and recognition of objects
- * Texture and shape analysis techniques
- * Fuzzy set theoretical approaches in image processing, neural networks, etc.
- * Content-based image retrieval and image mining
- * Biomedical image analysis and interpretation, including biomimetic algorithms such as face recognition and signature verification
- * Remotely sensed images and their applications
- * Principles and applications of dynamic scene analysis and moving object detection and tracking
- * Fundamentals of image compression, including the JPEG standard and the new JPEG2000 standard

 Additional features include problems and solutions with each chapter to help you apply the theory and techniques, as well as bibliographies for researching specialized topics. With its extensive use of examples and illustrative figures, this is a superior title for students and practitioners in computer science, wireless and multimedia communications, and engineering.

"The principal objectives of this book are to provide an introduction to basic concepts and methodologies for digital image processing, and to develop a foundation that can be used as the basis for further study and research in this field."--Back cover.

Dieses Lehrbuch behandelt die Grundlagen, Algorithmen und Anwendungen eines Teilbereichs der digitalen Bildverarbeitung: die Szenenanalyse bzw. die 3D-Bildanalyse. Methoden der Bildbearbeitung und der Musteranalyse stellen Werkzeuge dar, um aus den Bildinformationen von dreidimensionalen Objekten Ausgangsdaten für die Bildinterpretation zu erzeugen.

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.

Feature Extraction and Image Processing for Computer Vision

Concepts and Methods, Second Edition

Introduction to Image Processing and Analysis

Image Processing

Principles and Applications

The Handbook of Image and Video Processing contains a comprehensive and highly accessible presentation of all essential mathematics, techniques, and algorithms for every type of image and video processing used by scientists and engineers. The timely volume will provide both the novice and the seasoned practitioner with the necessary information and skills to be able to develop algorithms and applications for multimedia, digital imaging, digital video, telecommunications, and World Wide Web industries. Handbook of Image and Video Processing will also serve as a textbook for courses such as digital image processing, digital image analysis, digital video, video communications, multimedia, and biomedical image processing in the departments of electrical and computer engineering and computer science.

- * No other resource contains the same breadth of up-to-date coverage
- * Contains over 100 example algorithm illustrations
- * Contains a series of extremely accessible tutorial chapters
- * Indispensable for researchers in telecommunications, internet applications, multimedia, and nearly every branch of science

Whether for computer evaluation of otherworldly terrain or the latest high definition 3D blockbuster, digital image processing involves the acquisition, analysis, and processing of visual information by computer and requires a unique skill set that has yet to be defined a single text. Until now. Taking an applications-oriented, engineering approach, Digital Image Processing and Analysis provides the tools for developing and advancing computer and human vision applications and brings image processing and analysis together into a unified framework. Providing information and background in a logical, as-needed fashion, the author presents topics as they become necessary for understanding the practical imaging model under study. He offers a conceptual presentation of the material for a solid understanding of complex topics and discusses the theory and foundations of digital image processing and the algorithm development needed to advance the field. With liberal use of color through-out and more materials on the processing of color images than the previous edition, this book provides supplementary exercises, a new chapter on applications, and two major new tools that allow for batch processing, the analysis of imaging algorithms, and the overall research and development of imaging applications. It includes two new software tools, the Computer Vision and Image Processing Algorithm Test and Analysis Tool (CVIP-ATAT) and the CVIP Feature Extraction and Pattern Classification Tool (CVIP-FEPC). Divided into five major sections, this book provides the concepts and models required to analyze digital images and develop computer vision and human consumption applications as well as all the necessary information to use the CVIPtools environment for algorithm development, making it an ideal reference tool for this fast growing field.

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.

Colour imaging technology has become almost ubiquitous in modern life in the form of monitors, liquid crystal screens, colour printers, scanners, and digital cameras. This book is a comprehensive guide to the scientific and engineering principles of colour imaging. It covers the physics of light and colour, how the eye and physical devices capture colour images, how colour is measured and calibrated, and how images are processed. It stresses physical principles and includes a wealth of real-world examples. The book will be of value to scientists and engineers in the colour imaging industry and, with homework problems, can also be used as a text for graduate courses on colour imaging.

Eine algorithmische Einführung mit Java

Digital Image Processing with Application to Digital Cinema

Handbook of Research on Computational Intelligence for Engineering, Science, and Business

Fundamentals of Three-dimensional Digital Image Processing

Advanced Signal Processing

With crystal clarity, this book conveys the most current principles in digital image processing, providing both the background theory and the practical applications to various industries, such as digital cinema, video compression, and streaming media. This book contains tons of useful features, including:

- * a chapter on the role of human vision in image visualization,
- * the MATLAB codes used to generate most of the figures and tables listed in the book, as well as a few MATLAB projects,
- * a 24-pg color insert
- * case studies to illustrate the practical application of the theory.

This graduate textbook presents fundamentals, applications and evaluation of image segregation, unit description, feature measurement and pattern recognition. Analysis on textile, shape and motion are discussed and mathematical tools are employed extensively. Rich in examples and excises, it prepares electrical engineering and computer science students with knowledge and skills for further studies on image understanding.

Now in its fifth edition, John C. Russ's monumental image processing reference is an even more complete, modern, and hands-on tool than ever before. The Image Processing Handbook, Fifth Edition is fully updated and expanded to reflect the latest developments in the field. Written by an expert with unequalled experience and authority, it offers clear guidance on how to create, select, and use the most appropriate algorithms for a specific application. What's new in the Fifth Edition?

- A new chapter on the human visual process that explains which visual cues elicit a response from the viewer
- Description of the latest hardware and software for image acquisition and printing, reflecting the proliferation of the digital camera
- New material on multichannel images, including a major section on principal components analysis
- Expanded sections on deconvolution, extended dynamic range images, and image enlargement and interpolation
- More than 600 new and revised figures and illustrations for a total of more than 2000 illustrations
- 20% more references to the most up-to-date literature

 Written in a relaxed and reader-friendly style, The Image Processing Handbook, Fifth Edition guides you through the myriad tools available for image processing and helps you understand how to select and apply each one.

Theory and Implementation for Sonar, Radar, and Non-Invasive Medical Diagnostic Systems, Second Edition