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MATLAB Machine Learning - Michael Paluszek 2016-12-28
This book is a comprehensive guide to machine learning with worked examples in MATLAB. It starts with an overview of the history of Artificial Intelligence and automatic control and how the field of machine learning grew from these. It provides descriptions of all major areas in machine learning. The book reviews commercially available packages for machine learning and shows how they fit into the field. The book then shows how MATLAB can be used to solve machine learning problems and how MATLAB graphics can enhance the programmer's understanding of the results and help users of their software grasp the results. Machine Learning can be very mathematical. The mathematics for each area is introduced in a clear and concise form so that even casual readers can understand the math. Readers from all areas of engineering will see connections to what they know and will learn new technology. The book then provides complete solutions in MATLAB for several important problems in machine learning including face

identification, autonomous driving, and data classification. Full source code is provided for all of the examples and applications in the book. What you'll learn: An overview of the field of machine learning Commercial and open source packages in MATLAB How to use MATLAB for programming and building machine learning applications MATLAB graphics for machine learning Practical real world examples in MATLAB for major applications of machine learning in big data Who is this book for: The primary audiences are engineers and engineering students wanting a comprehensive and practical introduction to machine learning.

Digital Images for the Information Professional - Melissa M. Terras 2008

In the past decade, the way image based media is created, disseminated, and shared has changed exponentially, as digital imaging technology has replaced traditional film based media. Digital Images for the Information Professional provides an overview of **Handbook on Battery Energy Storage System** - Asian

Development Bank 2018-12-01

This handbook serves as a guide to deploying battery energy storage technologies, specifically for distributed energy resources and flexibility resources. Battery energy storage technology is the most promising, rapidly developed technology as it provides higher efficiency and ease of control. With energy transition through decarbonization and decentralization, energy storage plays a significant role to enhance grid efficiency by alleviating volatility from demand and supply. Energy storage also contributes to the grid integration of renewable energy and promotion of microgrid.

Machine Learning for Computer Vision - Roberto Cipolla
2012-07-27

Computer vision is the science and technology of making machines that see. It is concerned with the theory, design and implementation of algorithms that can automatically process visual data to recognize objects, track and recover their shape and spatial layout. The International Computer Vision Summer School - ICVSS was established in 2007 to provide both an objective and clear overview and an in-depth analysis of the state-of-the-art research in Computer Vision. The courses are delivered by world renowned experts in the field, from both academia and industry, and cover both theoretical and practical aspects of real Computer Vision problems. The school is organized every year by University of Cambridge (Computer Vision and Robotics Group) and University of Catania (Image Processing Lab). Different topics are covered each year. A summary of the past Computer Vision Summer Schools can be found at: <http://www.dmi.unict.it/icvss> This edited volume contains a selection of articles covering some of the

talks and tutorials held during the last editions of the school. The chapters provide an in-depth overview of challenging areas with key references to the existing literature.

Feature Extraction and Image Processing for Computer Vision - Mark Nixon 2019-11-17

Feature Extraction for Image Processing and Computer Vision is an essential guide to the implementation of image processing and computer vision techniques, with tutorial introductions and sample code in MATLAB and Python. Algorithms are presented and fully explained to enable complete understanding of the methods and techniques demonstrated. As one reviewer noted, "The main strength of the proposed book is the link between theory and exemplar code of the algorithms." Essential background theory is carefully explained. This text gives students and researchers in image processing and computer vision a complete introduction to classic and state-of-the-art methods in feature extraction together with practical guidance on their implementation. The only text to concentrate on feature extraction with working implementation and worked through mathematical derivations and algorithmic methods A thorough overview of available feature extraction methods including essential background theory, shape methods, texture and deep learning Up to date coverage of interest point detection, feature extraction and description and image representation (including frequency domain and colour) Good balance between providing a mathematical background and practical implementation Detailed and explanatory of algorithms in MATLAB and Python

Computer Vision - Richard Szeliski 2010-11-05

Humans perceive the three-dimensional structure of the world with apparent ease. However, despite all of the

recent advances in computer vision research, the dream of having a computer interpret an image at the same level as a two-year old remains elusive. Why is computer vision such a challenging problem and what is the current state of the art? *Computer Vision: Algorithms and Applications* explores the variety of techniques commonly used to analyze and interpret images. It also describes challenging real-world applications where vision is being successfully used, both for specialized applications such as medical imaging, and for fun, consumer-level tasks such as image editing and stitching, which students can apply to their own personal photos and videos. More than just a source of "recipes," this exceptionally authoritative and comprehensive textbook/reference also takes a scientific approach to basic vision problems, formulating physical models of the imaging process before inverting them to produce descriptions of a scene. These problems are also analyzed using statistical models and solved using rigorous engineering techniques. Topics and features: structured to support active curricula and project-oriented courses, with tips in the Introduction for using the book in a variety of customized courses; presents exercises at the end of each chapter with a heavy emphasis on testing algorithms and containing numerous suggestions for small mid-term projects; provides additional material and more detailed mathematical topics in the Appendices, which cover linear algebra, numerical techniques, and Bayesian estimation theory; suggests additional reading at the end of each chapter, including the latest research in each sub-field, in addition to a full Bibliography at the end of the book; supplies supplementary course material for students at the associated website,

<http://szeliski.org/Book/>. Suitable for an upper-level undergraduate or graduate-level course in computer science or engineering, this textbook focuses on basic techniques that work under real-world conditions and encourages students to push their creative boundaries. Its design and exposition also make it eminently suitable as a unique reference to the fundamental techniques and current research literature in computer vision.

Windows 10 - David Pogue 2018-07-15

"Microsoft's last Windows version, the April 2018 Update, is a glorious Santa sack full of new features and refinements. What's still not included, though, is a single page of printed instructions. Fortunately, David Pogue is back to help you make sense of it all--with humor, authority, and 500 illustrations."--Page 4 of cover.

Matlab for Engineers - Holly Moore 2011-07-28

This is a value pack of MATLAB for Engineers: International Version and MATLAB & Simulink Student Version 2011a

Digital Image Processing for Medical Applications - Geoff Dougherty 2009

Hands-on text for a first course aimed at end-users, focusing on concepts, practical issues and problem solving.

MATLAB For Dummies - John Paul Mueller 2021-06-29

Go from total MATLAB newbie to plotting graphs and solving equations in a flash! MATLAB is one of the most powerful and commonly used tools in the STEM field. But did you know it doesn't take an advanced degree or a ton of computer experience to learn it? MATLAB For Dummies is the roadmap you've been looking for to simplify and explain this feature-filled tool. This handy reference

walks you through every step of the way as you learn the MATLAB language and environment inside-and-out. Starting with straightforward basics before moving on to more advanced material like Live Functions and Live Scripts, this easy-to-read guide shows you how to make your way around MATLAB with screenshots and newly updated procedures. It includes: A comprehensive introduction to installing MATLAB, using its interface, and creating and saving your first file Fully updated to include the 2020 and 2021 updates to MATLAB, with all-new screenshots and up-to-date procedures Enhanced debugging procedures and use of the Symbolic Math Toolbox Brand new instruction on working with Live Scripts and Live Functions, designing classes, creating apps, and building projects Intuitive walkthroughs for MATLAB's advanced features, including importing and exporting data and publishing your work Perfect for STEM students and new professionals ready to master one of the most powerful tools in the fields of engineering, mathematics, and computing, MATLAB For Dummies is the simplest way to go from complete newbie to power user faster than you would have thought possible.

Getting Started with MATLAB 7 - Rudra Pratap 2006

MATLAB is one of the most widely used tools in the field of engineering today. Its broad appeal lies in its interactive environment with hundreds of built-in functions. This book is designed to get you up and running in just a few hours.

Image Processing In C - Dwayne Phillips 1995

This Book Is A Tutorial On Image Processing. Each Chapter Explains Basic Concepts With Words And Figures, Shows Image Processing Results With Photographs, And Implements The Operations In C. The C Code In This Book Is Based On A Series Of Articles Published In The C

Users Journal From 1990 Through 1993, And Includes Three Entirely New Chapters And Six New Appendices. The New Chapters Are 1) An Introduction To The Entire System, 2) A Set Of Routines For Boolean Operations On Images -- Such As Subtracting Or Adding One With Another, 3) A Batch System For Performing Offline Processing (Such As Overnight For Long Involved Manipulations). The C Image Processing System (Cips) Works With Tag Image File Format (Tiff) Gray Scale Images. The Entire System Has Been Updated From The Original Publications To Comply With The Tiff 6.0 Specification From June 1993 (The Magazine Articles Were Written For The Tiff 5.0 Specification.) The Text And Accompanying Source Code Provide Working Edge Detectors, Filters, And Histogram Equalizers, I/O Routines, Display And Print Procedures That Are Ready To Use, Or Can Be Modified For Special Applications. Print Routines Are Provided For Laser Printers, Graphics Printers, And Character Printers. Display Procedures Are Provided For Monochrome, Cga, Vga, And Ega Monitors. All Of These Functions Are Provided In A System That Will Run On A Garden Variety Pc, Not Requiring A Math Co-Processor, Frame Grabber, Or Super Vga Monitor.

Numerical Methods of Exploration Seismology - Gary F. Margrave 2019-01-10

Technical guide to the theory and practice of seismic data processing with MATLAB algorithms for advanced students, researchers and professionals.

Fundamentals of Multimedia - Ze-Nian Li 2014-04-09

This textbook introduces the "Fundamentals of Multimedia", addressing real issues commonly faced in the workplace. The essential concepts are explained in a practical way to enable students to apply their existing skills to address problems in multimedia. Fully revised

and updated, this new edition now includes coverage of such topics as 3D TV, social networks, high-efficiency video compression and conferencing, wireless and mobile networks, and their attendant technologies. Features: presents an overview of the key concepts in multimedia, including color science; reviews lossless and lossy compression methods for image, video and audio data; examines the demands placed by multimedia communications on wired and wireless networks; discusses the impact of social media and cloud computing on information sharing and on multimedia content search and retrieval; includes study exercises at the end of each chapter; provides supplementary resources for both students and instructors at an associated website.

Practical Image and Video Processing Using MATLAB - Oge Marques 2011-08-04

UP-TO-DATE, TECHNICALLY ACCURATE COVERAGE OF ESSENTIAL TOPICS IN IMAGE AND VIDEO PROCESSING This is the first book to combine image and video processing with a practical MATLAB®-oriented approach in order to demonstrate the most important image and video techniques and algorithms. Utilizing minimal math, the contents are presented in a clear, objective manner, emphasizing and encouraging experimentation. The book has been organized into two parts. Part I: Image Processing begins with an overview of the field, then introduces the fundamental concepts, notation, and terminology associated with image representation and basic image processing operations. Next, it discusses MATLAB® and its Image Processing Toolbox with the start of a series of chapters with hands-on activities and step-by-step tutorials. These chapters cover image acquisition and digitization; arithmetic, logic, and geometric operations; point-based, histogram-based, and

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

Government Reports Announcements & Index - 1995

Signals and Systems Using MATLAB - Luis Chaparro 2019-01-15

Signals and Systems Using MATLAB, Third Edition features a pedagogically rich and accessible approach to what can commonly be a mathematically dry subject. Historical notes and common mistakes combined with applications in

controls, communications and signal processing help students understand and appreciate the usefulness of the techniques described in the text. This new edition features more end-of-chapter problems, new content on two-dimensional signal processing, and discussions on the state-of-the-art in signal processing. Introduces both continuous and discrete systems early, then studies each (separately) in-depth Contains an extensive set of worked examples and homework assignments, with applications for controls, communications, and signal processing Begins with a review on all the background math necessary to study the subject Includes MATLAB(R) applications in every chapter

□□□□□□□□ - Alasdair McAndrew 2004

Is an introduction to digital image processing from an elementary perspective. The book covers topics that can be introduced with simple mathematics so students can learn the concepts without getting overwhelmed by mathematical detail.

An Invitation to 3-D Vision - Yi Ma 2012-11-06

This book introduces the geometry of 3-D vision, that is, the reconstruction of 3-D models of objects from a collection of 2-D images. It details the classic theory of two view geometry and shows that a more proper tool for studying the geometry of multiple views is the so-called rank consideration of the multiple view matrix. It also develops practical reconstruction algorithms and discusses possible extensions of the theory.

Deblurring Images - Per Christian Hansen 2006-01-01

Describes the deblurring algorithms and techniques collectively known as spectral filtering methods, in which the singular value decomposition, or a similar decomposition with spectral properties, is used to introduce the necessary regularization or filtering in

the reconstructed image. The concise MATLAB® implementations described in the book provide a template of techniques that can be used to restore blurred images from many applications.

Digital Image Restoration - Aggelos K. Katsaggelos
2012-11-16

The field of image restoration is concerned with the estimation of uncorrupted images from noisy, blurred ones. These blurs might be caused by optical distortions, object motion during imaging, or atmospheric turbulence. In many scientific and engineering applications, such as aerial imaging, remote sensing, electron microscopy, and medical imaging, there is active or potential work in image restoration. The purpose of this book is to provide in-depth treatment of some recent advances in the field of image restoration. A survey of the field is provided in the introduction. Recent research results are presented, regarding the formulation of the restoration problem as a convex programming problem, the implementation of restoration algorithms using artificial neural networks, the derivation of non stationary image models (compound random fields) and their application to image estimation and restoration, the development of algorithms for the simultaneous image and blur parameter identification and restoration, and the development of algorithms for restoring scanned photographic images. Special attention is directed to issues of numerical implementation. A large number of pictures demonstrate the performance of the restoration approaches. This book provides a clear understanding of the past achievements, a detailed description of the very important recent developments and the limitations of existing approaches, in the rapidly growing field of image restoration. It will be

useful both as a reference book for working scientists and engineers and as a supplementary textbook in courses on image processing.

Digital Image Interpolation in Matlab - Chi-Wah Kok
2019-03-19

This book provides a comprehensive study in digital image interpolation with theoretical, analytical and Matlab® implementation. It includes all historically and practically important interpolation algorithms, accompanied with Matlab® source code on a website, which will assist readers to learn and understand the implementation details of each presented interpolation algorithm. Furthermore, sections in fundamental signal processing theories and image quality models are also included. The authors intend for the book to help readers develop a thorough consideration of the design of image interpolation algorithms and applications for their future research in the field of digital image processing. Introduces a wide range of traditional and advanced image interpolation methods concisely and provides thorough treatment of theoretical foundations. Discusses in detail the assumptions and limitations of presented algorithms. Investigates a variety of interpolation and implementation methods including transform domain, edge-directed, wavelet and scale-space, and fractal based methods. Features simulation results for comparative analysis, summaries and computational and analytical exercises at the end of each chapter. Digital Image Interpolation in Matlab® is an excellent guide for researchers and engineers working in digital imaging and digital video technologies. Graduate students studying digital image processing will also benefit from this practical reference text.

Programming Computer Vision with Python - Jan Erik Solem

2012-06-19

If you want a basic understanding of computer vision's underlying theory and algorithms, this hands-on introduction is the ideal place to start. You'll learn techniques for object recognition, 3D reconstruction, stereo imaging, augmented reality, and other computer vision applications as you follow clear examples written in Python. Programming Computer Vision with Python explains computer vision in broad terms that won't bog you down in theory. You get complete code samples with explanations on how to reproduce and build upon each example, along with exercises to help you apply what you've learned. This book is ideal for students, researchers, and enthusiasts with basic programming and standard mathematical skills. Learn techniques used in robot navigation, medical image analysis, and other computer vision applications. Work with image mappings and transforms, such as texture warping and panorama creation. Compute 3D reconstructions from several images of the same scene. Organize images based on similarity or content, using clustering methods. Build efficient image retrieval techniques to search for images based on visual content. Use algorithms to classify image content and recognize objects. Access the popular OpenCV library through a Python interface.

Essentials of MATLAB Programming - Stephen J. Chapman
2016-10-14

Now readers can master the MATLAB language as they learn how to effectively solve typical problems with the concise, successful ESSENTIALS OF MATLAB PROGRAMMING, 3E. Author Stephen Chapman emphasizes problem-solving skills throughout the book as he teaches MATLAB as a technical programming language. Readers learn how to write clean, efficient, and well-documented programs,

while the book simultaneously presents the many practical functions of MATLAB. The first seven chapters introduce programming and problem solving. The last two chapters address more advanced topics of additional data types and plot types, cell arrays, structures, and new MATLAB handle graphics to ensure readers have the skills they need. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

High-Dimensional Data Analysis with Low-Dimensional Models - John Wright 2022-01-13

Connects fundamental mathematical theory with real-world problems, through efficient and scalable optimization algorithms.

Image and Video Compression - Madhuri A. Joshi 2014-11-17

Image and video signals require large transmission bandwidth and storage, leading to high costs. The data must be compressed without a loss or with a small loss of quality. Thus, efficient image and video compression algorithms play a significant role in the storage and transmission of data. Image and Video Compression:

Fundamentals, Techniques, and

Office 2013: The Missing Manual - Nancy Conner 2013-05-22

Microsoft Office is the most widely used productivity software in the world, but most people just know the basics. This helpful guide gets you started with the programs in Office 2013, and provides lots of power-user tips and tricks when you're ready for more. You'll learn about Office's new templates and themes, touchscreen features, and other advances, including Excel's Quick Analysis tool. The important stuff you need to know: Create professional-looking documents. Use Word to craft

reports, newsletters, and brochures for the Web and desktop. Stay organized. Set up Outlook to track your email, contacts, appointments, and tasks. Work faster with Excel. Determine the best way to present your data with the new Quick Analysis tool. Make inspiring presentations. Build PowerPoint slideshows with video and audio clips, charts and graphs, and animations. Share your Access database. Design a custom database and let other people view it in their web browsers. Get to know the whole suite. Use other handy Office tools: Publisher, OneNote, and a full range of Office Web Apps. Create and share documents in the cloud. Upload and work with your Office files in Microsoft's SkyDrive.

Nonlinear Signal and Image Analysis - J. Robert Buchler 1997

Compiled from papers presented at the 11th Annual Florida Workshop in Nonlinear Astronomy and Physics - Nonlinear Signal and Image Analysis, this work focuses on recent developments in time series and image processing techniques, as well as the physics that can be extracted using these techniques. It offers alternatives to conventional linear techniques, especially where chaos plays a role, and covers wavelet analysis, non-linear time-series analysis, neural networks, and spatial structures.

Biomedical Signal and Image Processing - Kayvan Najarian 2016-04-19

Written for senior-level and first year graduate students in biomedical signal and image processing, this book describes fundamental signal and image processing techniques that are used to process biomedical information. The book also discusses application of these techniques in the processing of some of the main biomedical signals and images, such as EEG, ECG, MRI,

and CT. New features of this edition include the technical updating of each chapter along with the addition of many more examples, the majority of which are MATLAB based.

Document Image Analysis - Lawrence O'Gorman 1995

The H.264 Advanced Video Compression Standard - Iain E. Richardson 2011-08-24

H.264 Advanced Video Coding or MPEG-4 Part 10 is fundamental to a growing range of markets such as high definition broadcasting, internet video sharing, mobile video and digital surveillance. This book reflects the growing importance and implementation of H.264 video technology. Offering a detailed overview of the system, it explains the syntax, tools and features of H.264 and equips readers with practical advice on how to get the most out of the standard. Packed with clear examples and illustrations to explain H.264 technology in an accessible and practical way. Covers basic video coding concepts, video formats and visual quality. Explains how to measure and optimise the performance of H.264 and how to balance bitrate, computation and video quality.

Analyses recent work on scalable and multi-view versions of H.264, case studies of H.264 codecs and new technological developments such as the popular High Profile extensions. An invaluable companion for developers, broadcasters, system integrators, academics and students who want to master this burgeoning state-of-the-art technology. "[This book] unravels the mysteries behind the latest H.264 standard and delves deeper into each of the operations in the codec. The reader can implement (simulate, design, evaluate, optimize) the codec with all profiles and levels. The book ends with extensions and directions (such as SVC

and MVC) for further research." Professor K. R. Rao, The University of Texas at Arlington, co-inventor of the Discrete Cosine Transform

MATLAB for Neuroscientists - Pascal Wallisch 2014-01-09
MATLAB for Neuroscientists serves as the only complete study manual and teaching resource for MATLAB, the globally accepted standard for scientific computing, in the neurosciences and psychology. This unique introduction can be used to learn the entire empirical and experimental process (including stimulus generation, experimental control, data collection, data analysis, modeling, and more), and the 2nd Edition continues to ensure that a wide variety of computational problems can be addressed in a single programming environment. This updated edition features additional material on the creation of visual stimuli, advanced psychophysics, analysis of LFP data, choice probabilities, synchrony, and advanced spectral analysis. Users at a variety of levels—advanced undergraduates, beginning graduate students, and researchers looking to modernize their skills—will learn to design and implement their own analytical tools, and gain the fluency required to meet the computational needs of neuroscience practitioners. The first complete volume on MATLAB focusing on neuroscience and psychology applications Problem-based approach with many examples from neuroscience and cognitive psychology using real data Illustrated in full color throughout Careful tutorial approach, by authors who are award-winning educators with strong teaching experience

Advanced Image and Video Processing Using MATLAB - Shengrong Gong 2018-08-21

This book offers a comprehensive introduction to advanced methods for image and video analysis and

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

A Guide to MATLAB - Brian R. Hunt 2006-06-08

This is a short, focused introduction to MATLAB, a comprehensive software system for mathematical and technical computing. It contains concise explanations of essential MATLAB commands, as well as easily understood instructions for using MATLAB's programming features, graphical capabilities, simulation models, and rich desktop interface. Written for MATLAB 7, it can also be used with earlier (and later) versions of MATLAB. This book teaches how to graph functions, solve equations, manipulate images, and much more. It contains explicit instructions for using MATLAB's companion software, Simulink, which allows graphical models to be built for dynamical systems. MATLAB's new "publish" feature is discussed, which allows mathematical computations to be combined with text and graphics, to produce polished, integrated, interactive documents. For the beginner it explains everything needed to start using MATLAB, while

experienced users making the switch to MATLAB 7 from an earlier version will also find much useful information here.

Digital Signal Processing Using MATLAB for Students and Researchers - John W. Leis 2011-10-14

Quickly Engages in Applying Algorithmic Techniques to Solve Practical Signal Processing Problems With its active, hands-on learning approach, this text enables readers to master the underlying principles of digital signal processing and its many applications in industries such as digital television, mobile and broadband communications, and medical/scientific devices. Carefully developed MATLAB® examples throughout the text illustrate the mathematical concepts and use of digital signal processing algorithms. Readers will develop a deeper understanding of how to apply the algorithms by manipulating the codes in the examples to see their effect. Moreover, plenty of exercises help to put knowledge into practice solving real-world signal processing challenges. Following an introductory chapter, the text explores: Sampled signals and digital processing Random signals Representing signals and systems Temporal and spatial signal processing Frequency analysis of signals Discrete-time filters and recursive filters Each chapter begins with chapter objectives and an introduction. A summary at the end of each chapter ensures that one has mastered all the key concepts and techniques before progressing in the text. Lastly, appendices listing selected web resources, research papers, and related textbooks enable the investigation of individual topics in greater depth. Upon completion of this text, readers will understand how to apply key algorithmic techniques to address practical signal processing problems as well as develop their own signal

processing algorithms. Moreover, the text provides a solid foundation for evaluating and applying new digital processing signal techniques as they are developed.

Statistics for Bioengineering Sciences - Brani Vidakovic 2011-08-04

Through its scope and depth of coverage, this book addresses the needs of the vibrant and rapidly growing engineering fields, bioengineering and biomedical engineering, while implementing software that engineers are familiar with. The author integrates introductory statistics for engineers and introductory biostatistics as a single textbook heavily oriented to computation and hands on approaches. For example, topics ranging from the aspects of disease and device testing, Sensitivity, Specificity and ROC curves, Epidemiological Risk Theory, Survival Analysis, or Logistic and Poisson Regressions are covered. In addition to the synergy of engineering and biostatistical approaches, the novelty of this book is in the substantial coverage of Bayesian approaches to statistical inference. Many examples in this text are solved using both the traditional and Bayesian methods, and the results are compared and commented.

Computational Methods for Inverse Problems - Curtis R. Vogel 2002

Provides a basic understanding of both the underlying mathematics and the computational methods used to solve inverse problems.

Library & Information Science Abstracts - 2006

Handbook of Computer Vision Algorithms in Image Algebra - Joseph N. Wilson 2000-09-21

Image algebra is a comprehensive, unifying theory of image transformations, image analysis, and image understanding. In 1996, the bestselling first edition of

the Handbook of Computer Vision Algorithms in Image Algebra introduced engineers, scientists, and students to this powerful tool, its basic concepts, and its use in the concise representation of computer vision algorithms. Updated to reflect recent developments and advances, the second edition continues to provide an outstanding introduction to image algebra. It describes more than 80 fundamental computer vision techniques and introduces the portable iaC++ library, which supports image algebra programming in the C++ language. Revisions to the first edition include a new chapter on geometric manipulation and spatial transformation, several additional algorithms, and the addition of exercises to each chapter. The authors-both instrumental in the groundbreaking development of image algebra-introduce each technique with a brief discussion of its purpose and methodology, then provide its precise mathematical formulation. In addition to furnishing the simple yet powerful utility of image algebra, the Handbook of Computer Vision Algorithms in Image Algebra supplies the core of knowledge all computer vision practitioners need. It offers a more practical, less esoteric presentation than those found in research publications that will soon earn it a prime location on your reference shelf.

Hyperspectral Image Analysis - Saurabh Prasad 2020-04-27

This book reviews the state of the art in algorithmic approaches addressing the practical challenges that arise with hyperspectral image analysis tasks, with a focus on emerging trends in machine learning and image processing/understanding. It presents advances in deep learning, multiple instance learning, sparse representation based learning, low-dimensional manifold models, anomalous change detection, target recognition,

sensor fusion and super-resolution for robust multispectral and hyperspectral image understanding. It presents research from leading international experts who have made foundational contributions in these areas. The book covers a diverse array of applications of multispectral/hyperspectral imagery in the context of these algorithms, including remote sensing, face recognition and biomedicine. This book would be particularly beneficial to graduate students and

researchers who are taking advanced courses in (or are working in) the areas of image analysis, machine learning and remote sensing with multi-channel optical imagery. Researchers and professionals in academia and industry working in areas such as electrical engineering, civil and environmental engineering, geosciences and biomedical image processing, who work with multi-channel optical data will find this book useful.