Text Ument Character Segmentation Matlab Source Code

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Applications of Topic Models - Jordan Boyd-Graber 2017-07-13
Describes recent academic and industrial applications of topic models with the goal of launching a young researcher capable of building their own applications of topic models.
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
Special Subset Vertex Subgraphs for Social Networks - W. B. Vasantha Kandasamy 2018-01-01
In this book authors for the first time introduce the new notion of special subset vertex subgraph of subset vertex graphs introduced recently. These subset vertex graphs takes the vertex set values from the power set P(X) of any set X. The main speciality of these subset vertex graphs is that once a set of subsets from P(X) is given, the edges of the graph are fixed in a unique way, so for a given collection of subset vertices the graph is always unique.
Professional CUDA C Programming - John Cheng 2014-09-09
Break into the powerful world of parallel GPU programming with this down-to-earth, practical guide Designed for professionals across multiple industrial sectors, Professional CUDA C Programming presents CUDA -- a parallel computing platform and programming model designed to ease the development of GPU programming -- fundamentals in an easy-to-follow format,

and teaches readers how to think in parallel and implement parallel algorithms on GPUs. Each chapter covers a specific topic, and includes workable examples that demonstrate the development process, allowing readers to explore both the "hard" and "soft" aspects of GPU programming. Computing architectures are experiencing a fundamental shift toward scalable parallel computing motivated by application requirements in industry and science. This book demonstrates the challenges of efficiently utilizing compute resources at peak performance, presents modern techniques for tackling these challenges, while increasing accessibility for professionals who are not necessarily parallel programming experts. The CUDA programming model and tools empower developers to write high-performance applications on a scalable, parallel computing platform: the GPU. However, CUDA itself can be difficult to learn without extensive programming experience. Recognized CUDA authorities John Cheng, Max Grossman, and Ty McKercher guide readers through essential GPU programming skills and best practices in Professional CUDA C Programming, including: CUDA Programming Model GPU Execution Model GPU Memory model Streams, Event and Concurrency Multi-GPU Programming CUDA Domain-Specific Libraries Profiling and Performance Tuning The book makes complex CUDA concepts easy to understand for anyone with knowledge of basic software development with exercises designed to be both readable and high-performance. For the professional seeking entrance to parallel computing and the high-performance computing community, Professional CUDA C Programming is an invaluable resource, with the most current information available on the market.

Handbook of Document Image Processing and Recognition - David Doermann 2014-05-21

The Handbook of Document Image Processing and Recognition is a comprehensive resource on the latest methods and techniques in document image processing and recognition. Each chapter provides a clear overview of the topic followed by the state of the art of techniques used – including elements of comparison between them – along with supporting references to archival publications, for those interested in delving deeper into topics addressed. Rather than favor a particular approach, the text enables the reader to make an informed decision for their specific problems.

Machine Learning in Document Analysis and Recognition - Simone Marinai 2008-01-10

The objective of Document Analysis and Recognition (DAR) is to recognize the text and graphicalcomponents of a document and to extract information. With ?rst papers dating back to the 1960’s, DAR is a mature but still gr- ing research?eld with consolidated and known techniques. Optical Character Recognition (OCR) engines are some of the most widely recognized pr- ucts of the research in this ?eld, while broader DAR techniques are nowadays studied and applied to other industrial and o?ce automation systems. In the machine learning community, one of the most widely known - search problems addressed in DAR is recognition of unconstrained handwr- ten characters which has been frequently used in the past as a benchmark for evaluating machine learning algorithms, especially supervised classi?ers. However, developing a DAR system is a complex engineering task that involves the integration of multiple techniques into an organic framework. A reader may feel that the use of machine learning algorithms is not approp- ate for other DAR tasks than character recognition. On the contrary, such algorithms have been massively used for nearly all the tasks in DAR. With large emphasis being devoted to character recognition and word recognition, other tasks such as pre-processing, layout analysis, character segmentation, and signature veri?cation have also bene?ted much from machine learning algorithms.

Seamless R and C++ Integration with Rcpp - Dirk Eddelbuettel 2013-06-04

Rcpp is the glue that binds the power and versatility of R with the speed and efficiency of C++. With Rcpp, the transfer of data between R and C++ is nearly seamless, and high-performance statistical computing is finally accessible to most R users. Rcpp should be part of every statistician's toolbox. -- Michael Braun, MIT Sloan School of Management "Seamless R and C++ integration with Rcpp" is simply a wonderful book. For anyone who uses C/C++ and R, it is an indispensable resource. The writing is outstanding. A huge bonus is the section on applications. This section covers the matrix packages Armadillo and Eigen and the GNU Scientific Library as well as RInside which enables you to use R inside C++. These applications are what most of us need to know to really do scientific programming with R and C++. I love this book. -- Robert McCulloch, University of Chicago Booth School of Business Rcpp is now considered an essential package for anybody doing serious computational research using R. Dirk's book is an excellent companion and takes the reader from a gentle introduction to more advanced applications via numerous examples and efficiency enhancing gems. The book is packed with all you might have ever wanted to know about Rcpp, its cousins (RcppArmadillo, RcppEigen .etc.), modules, package development and sugar. Overall, this book is a must-have on your shelf. -- Sanjog Misra, UCLA Anderson School of Management The Rcpp package represents a major leap forward for scientific computations with R. With very few lines of C++ code, one has R's data structures readily at hand for further computations in C++. Hence, high-level numerical programming can be made in C++ almost as easily as in R, but often with a substantial speed gain. Dirk is a crucial person in these developments, and his book takes the reader from the first fragile steps on to using the full Rcpp machinery. A very recommended book! -- Søren Højsgaard, Department of Mathematical Sciences, Aalborg University, Denmark "Seamless R and C ++ Integration with Rcpp" provides the first comprehensive introduction to Rcpp. Rcpp has become the most widely-used language extension for R, and is deployed by over one-hundred different CRAN and BioConductor packages. Rcpp permits users to pass scalars, vectors, matrices, list or entire R objects back and forth between R and C++ with ease. This brings the depth of the R analysis framework together with the power, speed, and efficiency of C++. Dirk Eddelbuettel has been a contributor to CRAN for over a decade and maintains around twenty packages. He is the Debian/Ubuntu maintainer for R and other quantitative software, edits the CRAN Task Views for Finance and High-Performance Computing, is a co-founder of the annual R/Finance conference, and an editor of the Journal of Statistical Software. He holds a Ph.D. in Mathematical Economics from EHESS (Paris), and works in Chicago as a Senior Quantitative Analyst.

Guide to OCR for Indic Scripts - Venu Govindaraju 2009-09-25

This is the first comprehensive text on Optical Character Recognition for Indic scripts. It covers many topics and describes OCR systems for eight different scripts—Bangla, Devanagari, Gurmukhi, Gujarti, Kannada, Malayalam, Tamil and Urdu.

Intelligent Technologies and Applications - Imran Sarwar Bajwa 2020-05-08

This book constitutes the refereed proceedings of the Second International Conference on Intelligent Technologies and Applications, INTAP 2019, held in Bahawalpur, Pakistan, in November 2019. The 60 revised full papers and 6 revised short papers presented were carefully reviewed and selected from 224 submissions. Additionally, the volume presents 1 invited paper. The papers of this volume are organized in topical sections on AI and health; sentiment analysis; intelligent applications; social media analytics; business intelligence;Natural Language Processing; information extraction; machine learning; smart systems; semantic web; decision support systems; image analysis; automated software engineering.

The PEBL Manual - Shane T. Mueller 2010-09-30

Printed manual for PEBL, the Psychological Experiment Building Language, Version 0.11.
2013 12th International Conference on Document Analysis and Recognition (ICDAR 2013) - 2013

Fundamentals of Digital Image Processing - Chris Solomon 2011-07-05
This is an introductory to intermediate level text on the science of image processing, which employs the Matlab programming language to illustrate some of the elementary, key concepts in modern image processing and pattern recognition. The approach taken is essentially practical and the book offers a framework within which the concepts can be understood by a series of well chosen examples, exercises and computer experiments, drawing on specific examples from within science, medicine and engineering. Clearly divided into eleven distinct chapters, the book begins with a fast-start introduction to image processing to enhance the accessibility of later topics. Subsequent chapters offer increasingly advanced discussion of topics involving more challenging concepts, with the final chapter looking at the application of automated image classification (with Matlab examples) . Matlab is frequently used in the book as a tool for demonstrations, conducting experiments and for solving problems, as it is both ideally suited to this role and is widely available. Prior experience of Matlab is not required and those without access to Matlab can still benefit from the independent presentation of topics and numerous examples. Features a companion website www.wiley.com/go/solomon/fundamentals containing a Matlab fast-start primer, further exercises, examples, instructor resources and accessibility to all files corresponding to the examples and exercises within the book itself. Includes numerous examples, graded exercises and computer experiments to support both students and instructors alike.

Writer Identification and Verification - Andreas Schlapbach 2008

Computer Vision with SAS - Susan Kahler 2020-07-22
Computer vision is a field of artificial intelligence that trains computers to interpret and understand the visual world. In recent years, computer vision has begun to rival and even surpass human visual abilities in many areas. SAS offers many different solutions to train computers to "see" by identifying and classifying objects, and several groundbreaking papers have been written to demonstrate these techniques. The papers included in this special collection demonstrate how the latest computer vision tools and techniques can be used to solve a variety of business problems.
Python Data Science Handbook - Jake VanderPlas 2016-11-21
For many researchers, Python is a first-class tool mainly because of its libraries for storing, manipulating, and gaining insight from data. Several resources exist for individual pieces of this data science stack, but only with the Python Data Science Handbook do you get them all—IPython, NumPy, Pandas, Matplotlib, Scikit-Learn, and other related tools. Working scientists and data crunchers familiar with reading and writing Python code will find this comprehensive desk reference ideal for tackling day-to-day issues: manipulating, transforming, and cleaning data; visualizing different types of data; and using data to build statistical or machine learning models. Quite simply, this is the must-have reference for scientific computing in Python. With this handbook, you'll learn how to use: IPython and Jupyter: provide computational environments for data scientists using Python NumPy: includes the ndarray for efficient storage and manipulation of dense data arrays in Python Pandas: features the DataFrame for efficient storage and manipulation of labeled/columnar data in Python Matplotlib: includes capabilities for a flexible range of data visualizations in Python Scikit-Learn: for efficient and clean Python implementations of the most

important and established machine learning algorithms

Intelligent Systems for Science and Information - Liming Chen 2014-01-25

The book Intelligent Systems for Science and Information is the remarkable collection of extended chapters from the selected papers that were published in the proceedings of Science and Information (SAI) Conference 2013. It contains twenty-four chapters in the field of Intelligent Systems, which received highly recommended feedback during SAI Conference 2013 review process. All chapters have gone through substantial extension and consolidation and were subject to another round of rigorous review and additional modification. These chapters represent the state of the art of the cutting-edge research and technologies in related areas, and can help inform relevant research communities and individuals of the future development in Science and Information.

Python for Data Analysis - Wes McKinney 2017-09-25

Get complete instructions for manipulating, processing, cleaning, and crunching datasets in Python. Updated for Python 3.6, the second edition of this hands-on guide is packed with practical case studies that show you how to solve a broad set of data analysis problems effectively. You'll learn the latest versions of pandas, NumPy, IPython, and Jupyter in the process. Written by Wes McKinney, the creator of the Python pandas project, this book is a practical, modern introduction to data science tools in Python. It's ideal for analysts new to Python and for Python programmers new to data science and scientific computing. Data files and related material are available on GitHub. Use the IPython shell and Jupyter notebook for exploratory computing Learn basic and advanced features in NumPy (Numerical Python) Get started with data analysis tools in the pandas library Use flexible tools to load, clean, transform, merge, and reshape data Create informative visualizations with matplotlib Apply the pandas groupby facility to slice, dice, and summarize datasets Analyze and manipulate regular and irregular time series data Learn how to solve real-world data analysis problems with thorough, detailed examples

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.

Digital Signal Processing Using MATLAB - Vinay K. Ingle 2007

This supplement to any standard DSP text is one of the first books to successfully integrate the use of MATLAB® in the study of DSP concepts. In this book, MATLAB® is used as a computing tool to explore traditional DSP topics, and solve problems to gain insight. This greatly expands the range and complexity of problems that students can effectively study in the course. Since DSP applications are primarily algorithms implemented on a DSP processor or software, a fair amount of programming is required. Using interactive software such as MATLAB® makes it possible to place more emphasis on learning new and difficult concepts than on programming algorithms. Interesting practical examples

are discussed and useful problems are explored. This updated second edition includes new homework problems and revises the scripts in the book, available functions, and m-files to MATLAB® V7.

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.

Natural Language Processing and Text Mining - Anne Kao 2007-03-06

Natural Language Processing and Text Mining not only discusses applications of Natural Language Processing techniques to certain Text Mining tasks, but also the converse, the use of Text Mining to assist NLP. It assembles a diverse views from internationally recognized researchers and emphasizes caveats in the attempt to apply Natural Language Processing to text mining. This state-of-the-art survey is a must-have for advanced students, professionals, and researchers.

Introduction to Natural Language Processing - Jacob Eisenstein 2019-10-01

A survey of computational methods for understanding, generating, and manipulating human language, which offers a synthesis of classical representations and algorithms with contemporary machine learning techniques. This textbook provides a technical perspective on natural language processing—methods for building computer software that understands, generates, and manipulates human language. It emphasizes contemporary data-driven approaches, focusing on techniques from supervised and unsupervised machine learning. The first section establishes a foundation in machine learning by building a set of tools that will be used throughout the book and applying them to word-based textual analysis. The second section introduces structured representations of language, including sequences, trees, and graphs. The third section explores different approaches to the representation and analysis of linguistic meaning, ranging from formal logic to neural word embeddings. The final section offers chapter-length treatments of three transformative applications of natural language processing: information extraction, machine translation, and text generation. End-of-chapter exercises include both paper-and-pencil analysis and software implementation. The text synthesizes and distills a broad and diverse research literature, linking contemporary machine learning techniques with the field's linguistic and computational foundations. It is suitable for use in advanced undergraduate and graduate-level courses and as a reference for software engineers and data scientists. Readers should have a

background in computer programming and college-level mathematics. After mastering the material presented, students will have the technical skill to build and analyze novel natural language processing systems and to understand the latest research in the field.

Video Text Detection - Tong Lu 2014-07-23

This book presents a systematic introduction to the latest developments in video text detection. Opening with a discussion of the underlying theory and a brief history of video text detection, the text proceeds to cover pre-processing and post-processing techniques, character segmentation and recognition, identification of non-English scripts, techniques for multi-modal analysis and performance evaluation. The detection of text from both natural video scenes and artificially inserted captions is examined. Various applications of the technology are also reviewed, from license plate recognition and road navigation assistance, to sports analysis and video advertising systems. Features: explains the fundamental theory in a succinct manner, supplemented with references for further reading; highlights practical techniques to help the reader understand and develop their own video text detection systems and applications; serves as an easy-to-navigate reference, presenting the material in self-contained chapters.

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.

Deep Learning Quick Reference - Michael Bernico 2018-03-09

Dive deeper into neural networks and get your models trained, optimized with this quick reference guide Key Features A quick reference to all important deep learning concepts and their implementations Essential tips, tricks, and hacks to train a variety of deep learning models such as CNNs, RNNs, LSTMs, and more Supplemented with essential mathematics and theory, every chapter provides best practices and safe choices for training and fine-tuning your models in Keras and Tensorflow. Book Description Deep learning has become an essential necessity to enter the world of artificial intelligence. With this book deep learning techniques will become more accessible, practical, and relevant to practicing data scientists. It moves deep learning from academia to the real world through practical examples. You will learn how Tensor Board is used to monitor the training of deep

neural networks and solve binary classification problems using deep learning. Readers will then learn to optimize hyperparameters in their deep learning models. The book then takes the readers through the practical implementation of training CNN's, RNN's, and LSTM's with word embeddings and seq2seq models from scratch. Later the book explores advanced topics such as Deep Q Network to solve an autonomous agent problem and how to use two adversarial networks to generate artificial images that appear real. For implementation purposes, we look at popular Python-based deep learning frameworks such as Keras and Tensorflow, Each chapter provides best practices and safe choices to help readers make the right decision while training deep neural networks. By the end of this book, you will be able to solve real-world problems quickly with deep neural networks. What you will learn Solve regression and classification challenges with TensorFlow and Keras Learn to use Tensor Board for monitoring neural networks and its training Optimize hyperparameters and safe choices/best practices Build CNN's, RNN's, and LSTM's and using word embedding from scratch Build and train seq2seq models for machine translation and chat applications. Understanding Deep Q networks and how to use one to solve an autonomous agent problem. Explore Deep Q Network and address autonomous agent challenges. Who this book is for If you are a Data Scientist or a Machine Learning expert, then this book is a very useful read in training your advanced machine learning and deep learning models. You can also refer this book if you are stuck in-between the neural network modeling and need immediate assistance in getting accomplishing the task smoothly. Some prior knowledge of Python and tight hold on the basics of machine learning is required.

Practical Machine Learning with Python - Dipanjan Sarkar 2017-12-20

Master the essential skills needed to recognize and solve complex problems with machine learning and deep learning. Using real-world examples that leverage the popular Python machine learning ecosystem, this book is your perfect companion for learning the art and science of machine learning to become a successful practitioner. The concepts, techniques, tools, frameworks, and methodologies used in this book will teach you how to think, design, build, and execute machine learning systems and projects successfully. Practical Machine Learning with Python follows a structured and comprehensive three-tiered approach packed with hands-on examples and code. Part 1 focuses on understanding machine learning concepts and tools. This includes machine learning basics with a broad overview of algorithms, techniques, concepts and applications, followed by a tour of the entire Python machine learning ecosystem. Brief guides for useful machine learning tools, libraries and frameworks are also covered. Part 2 details standard machine learning pipelines, with an emphasis on data processing analysis, feature engineering, and modeling. You will learn how to process, wrangle, summarize and visualize data in its various forms. Feature engineering and selection methodologies will be covered in detail with real-world datasets followed by model building, tuning, interpretation and deployment. Part 3 explores multiple real-world case studies spanning diverse domains and industries like retail, transportation, movies, music, marketing, computer vision and finance. For each case study, you will learn the application of various machine learning techniques and methods. The hands-on examples will help you become familiar with state-of-the-art machine learning tools and techniques and understand what algorithms are best suited for any problem. Practical Machine Learning with Python will empower you to start solving your own problems with machine learning today! What You'll Learn Execute end-to-end machine learning projects and systems Implement hands-on examples with industry standard, open source, robust machine learning tools and frameworks Review case studies depicting applications of machine learning and deep

learning on diverse domains and industries Apply a wide range of machine learning models including regression, classification, and clustering. Understand and apply the latest models and methodologies from deep learning including CNNs, RNNs, LSTMs and transfer learning. Who This Book Is For IT professionals, analysts, developers, data scientists, engineers, graduate students

Digital Signal Processing Using MATLAB & Wavelets - Michael Weeks 2011

Although Digital Signal Processing (DSP) has long been considered an electrical engineering topic, recent developments have also generated significant interest from the computer science community. DSP applications in the consumer market, such as bioinformatics, the MP3 audio format, and MPEG-based cable/satellite television have fueled a desire to understand this technology outside of hardware circles. Designed for upper division engineering and computer science students as well as practicing engineers and scientists, Digital Signal Processing Using MATLAB & Wavelets, Second Edition emphasizes the practical applications of signal processing. Over 100 MATLAB examples and wavelet techniques provide the latest applications of DSP, including image processing, games, filters, transforms, networking, parallel processing, and sound. This Second Edition also provides the mathematical processes and techniques needed to ensure an understanding of DSP theory. Designed to be incremental in difficulty, the book will benefit readers who are unfamiliar with complex mathematical topics or those limited in programming experience. Beginning with an introduction to MATLAB programming, it moves through filters, sinusoids, sampling, the Fourier transform, the z-transform and other key topics. Two chapters are dedicated to the discussion of wavelets and their applications. A CD-ROM (platform independent) accompanies the book and contains source code, projects for each chapter, and the figures from the book.

Document Image Analysis - Lawrence O'Gorman 1995

Robotic Vision - Peter Corke 2021-10-15

This textbook offers a tutorial introduction to robotics and Computer Vision which is light and easy to absorb. The practice of robotic vision involves the application of computational algorithms to data. Over the fairly recent history of the fields of robotics and computer vision a very large body of algorithms has been developed. However this body of knowledge is something of a barrier for anybody entering the field, or even looking to see if they want to enter the field — What is the right algorithm for a particular problem?, and importantly: How can I try it out without spending days coding and debugging it from the original research papers? The author has maintained two open-source MATLAB Toolboxes for more than 10 years: one for robotics and one for vision. The key strength of the Toolboxes provide a set of tools that allow the user to work with real problems, not trivial examples. For the student the book makes the algorithms accessible, the Toolbox code can be read to gain understanding, and the examples illustrate how it can be used —instant gratification in just a couple of lines of MATLAB code. The code can also be the starting point for new work, for researchers or students, by writing programs based on Toolbox functions, or modifying the Toolbox code itself. The purpose of this book is to expand on the tutorial material provided with the toolboxes, add many more examples, and to weave this into a narrative that covers robotics and computer vision separately and together. The author shows how complex problems can be decomposed and solved using just a few simple lines of code, and hopefully to inspire up and coming researchers. The topics covered are guided by the real problems observed over many years as a practitioner of both robotics and computer vision. It is written in a light but informative style, it is easy to read and absorb, and includes a lot of Matlab examples and figures. The book is a real walk through

the fundamentals light and color, camera modelling, image processing, feature extraction and multi-view geometry, and bring it all together in a visual servo system. “An authoritative book, reaching across fields, thoughtfully conceived and brilliantly accomplished Oussama Khatib, Stanford

A MATLAB Exercise Book - Ludmila Kuncheva 2014-06-18

A practical guide to problem solving using MATLAB. Designed to complement a taught course introducing MATLAB but ideally suited for any beginner. This book provides a brief tour of some of the tasks that MATLAB is perfectly suited to instead of focusing on any particular topic. Providing instruction, guidance and a large supply of exercises, this book is meant to stimulate problem-solving skills rather than provide an in-depth knowledge of the MATLAB language.

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.

Numerical Computing with MATLAB - Cleve B. Moler 2010-08-12

A revised textbook for introductory courses in numerical methods, MATLAB and technical computing, which emphasises the use of mathematical software.

Document Image Analysis - Horst Bunke 1994

Interest in the automatic processing and analysis of document images has been rapidly increasing during the past few years. This book addresses the different subfields of document image analysis, including preprocessing and segmentation, form processing, handwriting recognition, line drawing and map processing, and contextual processing.

Pattern Recognition - Sergios Theodoridis 2003-05-15

Pattern recognition is a scientific discipline that is becoming increasingly important in the age of automation and information handling and retrieval. Patter Recognition, 2e covers the entire spectrum of pattern recognition applications, from image analysis to speech recognition and communications. This book presents cutting-edge material on neural networks, - a set of linked microprocessors that can form associations and uses pattern recognition to "learn" -and enhances student motivation by approaching pattern recognition from the designer's point of view. A direct result of more than 10 years of teaching experience, the text was developed by the authors through use in their own classrooms. *Approaches pattern recognition from the designer's point of view *New edition highlights latest developments in this growing field, including independent components and support vector machines, not available elsewhere *Supplemented by computer examples selected from applications of interest

Dive Into Deep Learning - Joanne Quinn 2019-07-15

The leading experts in system change and learning, with their school-based partners around the world, have created this

essential companion to their runaway best-seller, Deep Learning: Engage the World Change the World. This hands-on guide provides a roadmap for building capacity in teachers, schools, districts, and systems to design deep learning, measure progress, and assess conditions needed to activate and sustain innovation. Dive Into Deep Learning: Tools for Engagement is rich with resources educators need to construct and drive meaningful deep learning experiences in order to develop the kind of mindset and know-how that is crucial to becoming a problem-solving change agent in our global society. Designed in full color, this easy-to-use guide is loaded with tools, tips, protocols, and real-world examples. It includes: • A framework for deep learning that provides a pathway to develop the six global competencies needed to flourish in a complex world — character, citizenship, collaboration, communication, creativity, and critical thinking. • Learning progressions to help educators analyze student work and measure progress. • Learning design rubrics, templates and examples for incorporating the four elements of learning design: learning partnerships, pedagogical practices, learning environments, and leveraging digital. • Conditions rubrics, teacher self-assessment tools, and planning guides to help educators build, mobilize, and sustain deep learning in schools and districts. Learn about, improve, and expand your world of learning. Put the joy back into learning for students and adults alike. Dive into deep learning to create learning experiences that give purpose, unleash student potential, and transform not only learning, but life itself.

Proceedings, 11th International Conference on Document Analysis and Recognition - 2011

High-level Synthesis - Michael Fingeroff 2010

Are you an RTL or system designer that is currently using, moving, or planning to move to an HLS design environment? Finally, a comprehensive guide for designing hardware using C++ is here. Michael Fingeroff's High-Level Synthesis Blue Book presents the most effective C++ synthesis coding style for achieving high quality RTL. Master a totally new design methodology for coding increasingly complex designs! This book provides a step-by-step approach to using C++ as a hardware design language, including an introduction to the basics of HLS using concepts familiar to RTL designers. Each chapter provides easy-to-understand C++ examples, along with hardware and timing diagrams where appropriate. The book progresses from simple concepts such as sequential logic design to more complicated topics such as memory architecture and hierarchical sub-system design. Later chapters bring together many of the earlier HLS design concepts through their application in simplified design examples. These examples illustrate the fundamental principles behind C++ hardware design, which will translate to much larger designs. Although this book focuses primarily on C and C++ to present the basics of C++ synthesis, all of the concepts are equally applicable to SystemC when describing the core algorithmic part of a design. On completion of this book, readers should be well on their way to becoming experts in high-level synthesis.

Advanced Image-Based Spam Detection and Filtering Techniques - Dhavale, Sunita Vikrant 2017-03-10

Security technologies have advanced at an accelerated pace in the past few decades. These advancements in cyber security have benefitted many organizations and companies interested in protecting their virtual assets. Advanced Image-Based Spam Detection and Filtering Techniques provides a detailed examination of the latest strategies and methods used to protect against virtual spam. Featuring comprehensive coverage across a range of related topics such as image filters, optical character recognition, fuzzy inference systems, and near-duplicate detection, this book is an ideal reference source for engineers, business managers, professionals, and researchers seeking

innovative technologies to aid in spam recognition.

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 toexploring 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.

Natural Language Processing with Python - Steven Bird 2009-06-12

This book offers a highly accessible introduction to natural language processing, the field that supports a variety of language technologies, from predictive text and email filtering to automatic summarization and translation. With it, you'll learn how to write Python programs that work with large collections of unstructured text. You'll access richly annotated datasets using a comprehensive range of linguistic data structures, and you'll understand the main algorithms for analyzing the content and structure of written communication. Packed with examples and exercises, Natural Language Processing with Python will help you: Extract information from unstructured text, either to guess the topic or identify "named entities" Analyze linguistic structure in text, including parsing and semantic analysis Access popular linguistic databases, including WordNet and treebanks Integrate techniques drawn from fields as diverse as linguistics and artificial intelligence This book will help you gain practical skills in natural language processing using the Python programming language and the Natural Language Toolkit (NLTK) open source library. If you're interested in developing web applications, analyzing multilingual news sources, or documenting endangered languages -- or if you're simply curious to have a programmer's perspective on how human language works -- you'll find Natural Language Processing with Python both fascinating and immensely useful.