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KEY=CHAPTER - DIAMOND VANESSA

Applied Integer Programming

Modeling and Solution

John Wiley & Sons An accessible treatment of the modeling and solution of integer programming problems, featuring modern applications and software In order to fully comprehend the algorithms associated with integer programming, it is important to understand not only how algorithms work, but also why they work. Applied Integer Programming features a unique emphasis on this point, focusing on problem modeling and solution using commercial software. Taking an application-oriented approach, this book addresses the art and science of mathematical modeling related to the mixed integer programming (MIP) framework and discusses the algorithms and associated practices that enable those models to be solved most efficiently. The book begins with coverage of successful applications, systematic modeling procedures, typical model types, transformation of non-MIP models, combinatorial optimization problem models, and automatic preprocessing to obtain a better formulation. Subsequent chapters present algebraic and geometric basic concepts of linear programming theory and network flows needed for understanding integer programming. Finally, the book concludes with classical and modern solution approaches as well as the key components for building an integrated software system capable of solving large-scale integer programming and combinatorial optimization problems. Throughout the book, the authors demonstrate essential concepts through numerous examples and figures. Each new concept or algorithm is accompanied by a numerical example, and, where applicable, graphics are used to draw together diverse problems or approaches into a unified whole. In addition, features of solution approaches found in today's commercial software are identified throughout the book. Thoroughly classroom-tested, Applied Integer Programming is an excellent book for integer programming courses at the upper-undergraduate and graduate levels. It also serves as a well-organized reference for professionals, software developers, and analysts who work in the fields of applied mathematics, computer science, operations research, management science, and engineering and use integer-programming techniques to model and solve real-world optimization problems.

Fundamentals of Probability and Statistics for Engineers

John Wiley & Sons This textbook differs from others in the field in that it has been prepared very much with students and their needs in mind, having been classroom tested over many years. It is a true "learner's book" made for students who require a deeper understanding of probability and statistics. It presents the fundamentals of the subject along with concepts of probabilistic modelling, and the process of model selection, verification and analysis. Furthermore, the inclusion of more than 100 examples and 200 exercises (carefully selected from a wide range of topics), along with a solutions manual for instructors, means that this text is of real value to students and lecturers across a range of engineering disciplines. Key features: Presents the fundamentals in probability and statistics along with relevant applications. Explains the concept of probabilistic modelling and the process of model selection, verification and analysis. Definitions and theorems are carefully stated and topics rigorously treated. Includes a chapter on regression analysis. Covers design of experiments. Demonstrates practical problem solving throughout the book with numerous examples and exercises purposely selected from a variety of engineering fields. Includes an accompanying online Solutions Manual for instructors containing complete step-by-step solutions to all problems.

First Certificate Language Practice

English Grammar and Vocabulary

Hands-On Exploratory Data Analysis with Python

Perform EDA techniques to understand, summarize, and investigate your data

Packt Publishing Ltd Discover techniques to summarize the characteristics of your data using PyPlot, NumPy, SciPy, and pandas Key FeaturesUnderstand the fundamental concepts of exploratory data analysis using PythonFind missing values in your data and identify the correlation between different variablesPractice graphical exploratory analysis techniques using Matplotlib and the Seaborn Python packageBook Description Exploratory Data Analysis (EDA) is an approach to data analysis that involves the application of diverse techniques to gain insights into a dataset. This book will help you gain practical knowledge of the main pillars of EDA - data cleaning, data preparation, data exploration, and data visualization. You'll start by performing EDA using open source datasets and perform simple to advanced analyses to turn data into meaningful insights. You'll then learn various descriptive statistical techniques to describe the basic characteristics of data and progress to performing EDA on time-series data. As you advance, you'll learn how to implement EDA techniques for model development and evaluation and build predictive models to visualize results. Using Python for data analysis, you'll work with real-world datasets, understand data, summarize its characteristics, and visualize it for business intelligence. By the end of this EDA book, you'll have developed the skills required to carry out a preliminary investigation on any dataset, yield insights into data, present your results with visual aids, and build a model that correctly predicts future outcomes. What you will learnImport, clean, and explore data to perform preliminary analysis using powerful Python packagesIdentify and transform erroneous data using different data wrangling techniquesExplore the use of multiple regression to describe non-linear relationshipsDiscover hypothesis testing and explore techniques of time-series analysisUnderstand and interpret results obtained from graphical analysisBuild, train, and optimize predictive models to estimate resultsPerform complex EDA techniques on open source datasetsWho this book is for This EDA book is for anyone interested in data analysis, especially students, statisticians, data analysts, and data scientists. The practical concepts presented in this book can be applied in various disciplines to enhance decision-making processes with data analysis and synthesis. Fundamental knowledge of Python programming and statistical concepts is all you need to get started with this book.

Improving the Airport Customer Experience

"TRB's Airport Cooperative Research Program (ACRP) Report 157: Improving the Airport Customer Experience documents notable and emerging practices in airport customer service management that increase customer satisfaction, recognizing the different types of customers (such as passengers, meeters and greeters, and employees) and types and sizes of airports. It also identifies potential improvements that airports could make for their customers." -- Publisher's description

Advanced Language Practice

With Key ; English Grammar and Vocabulary

Stochastic Processes and Applications

Diffusion Processes, the Fokker-Planck and Langevin Equations

Springer This book presents various results and techniques from the theory of stochastic processes that are useful in the study of stochastic problems in the natural sciences. The main focus is analytical methods, although numerical methods and statistical inference methodologies for studying diffusion processes are also presented. The goal is the development of techniques that are applicable to a wide variety of stochastic models that appear in physics, chemistry and other natural sciences. Applications such as stochastic resonance, Brownian motion in periodic potentials and Brownian motors are studied and the connection between diffusion processes and time-dependent statistical mechanics is elucidated. The book contains a large number of illustrations, examples, and exercises. It will be useful for graduate-level courses on stochastic processes for students in applied mathematics, physics and engineering. Many of the topics covered in this book (reversible diffusions, convergence to equilibrium for diffusion processes, inference methods for stochastic differential equations, derivation of the generalized Langevin equation, exit time problems) cannot be easily found in textbook form and will be useful to both researchers and students interested in the applications of stochastic processes.

Discriminant Analysis and Statistical Pattern Recognition

John Wiley & Sons The Wiley-Interscience Paperback Series consists of selected books that have been made more accessible to consumers in an effort to increase global appeal and general circulation. With these new unabridged softcover volumes, Wiley hopes to extend the lives of these works by making them available to future generations of statisticians, mathematicians, and scientists. "For both applied and theoretical statisticians as well as investigators working in the many areas in which relevant use can be made of discriminant techniques, this monograph provides a modern, comprehensive, and systematic account of discriminant analysis, with the focus on the more recent advances in the field." –SciTech Book News ". . . a very useful source of information for any researcher working in discriminant analysis and pattern recognition." –Computational Statistics Discriminant Analysis and Statistical Pattern Recognition provides a systematic account of the subject. While the focus is on practical considerations, both theoretical and practical issues are explored. Among the advances covered are regularized discriminant analysis and bootstrap-based assessment of the performance of a sample-based discriminant rule, and extensions of discriminant analysis motivated by problems in statistical image analysis. The accompanying bibliography contains over 1,200 references.

Discovering Knowledge in Data

An Introduction to Data Mining

John Wiley & Sons Learn Data Mining by doing data mining Data mining can be revolutionary-but only when it's done right. The powerful black box data mining software now available can produce disastrously misleading results unless applied by a skilled and knowledgeable analyst. Discovering Knowledge in Data: An Introduction to Data Mining provides both the practical experience and the theoretical insight needed to reveal valuable information hidden in large data sets. Employing a "white box" methodology and with real-world case studies, this step-by-step guide walks readers through the various algorithms and statistical structures that underlie the software and presents examples of their operation on actual large data sets. Principal topics include: * Data preprocessing and classification * Exploratory analysis * Decision trees * Neural and Kohonen networks * Hierarchical and k-means clustering * Association rules * Model evaluation techniques Complete with scores of screenshots and diagrams to encourage graphical learning, Discovering Knowledge in Data: An Introduction to Data Mining gives students in Business, Computer Science, and Statistics as well as professionals in the field the power to turn any data warehouse into actionable knowledge. An Instructor's Manual presenting detailed solutions to all the problems in the book is available online.

Fuzzy Cognitive Maps and Neutrosophic Cognitive Maps

Infinite Study In a world of chaotic alignments, traditional logic with its strict boundaries of truth and falsity has not imbued itself with the capability of reflecting the reality. Despite various attempts to reorient logic, there has remained an essential need for an alternative system that could infuse into itself a representation of the real world. Out of this need arose the system of Neutrosophy (the philosophy of neutralities, introduced by FLORENTIN SMARANDACHE), and its connected logic Neutrosophic Logic, which is a further generalization of the theory of Fuzzy Logic. In this book we study the concepts of Fuzzy Cognitive Maps (FCMs) and their Neutrosophic analogue, the Neutrosophic Cognitive Maps (NCMs). Fuzzy Cognitive Maps are fuzzy structures that strongly resemble neural networks, and they have powerful and far-reaching consequences as a mathematical tool for modeling complex systems. Neutrosophic Cognitive Maps are generalizations of FCMs, and their unique feature is the ability to handle indeterminacy in relations between two concepts thereby bringing greater sensitivity into the results. Some of the varied applications of FCMs and NCMs which has been explained by us, in this book, include: modeling of supervisory systems; design of hybrid models for complex systems; mobile robots and in intimate technology such as office plants; analysis of business performance assessment; formalism debate and legal rules; creating metabolic and regulatory network models; traffic and transportation problems; medical diagnostics; simulation of strategic planning process in intelligent systems; specific language impairment; web-mining inference application; child labor problem; industrial relations: between employer and employee, maximizing production and profit; decision support in intelligent intrusion detection system; hyper-knowledge representation in strategy formation; female infanticide; depression in terminally ill patients and finally, in the theory of community mobilization and women empowerment relative to the AIDS epidemic.

Political Game Theory

An Introduction

Cambridge University Press Political Game Theory is a self-contained introduction to game theory and its applications to political science. The book presents choice theory, social choice theory, static and dynamic games of complete information, static and dynamic games of incomplete information, repeated games, bargaining theory, mechanism design and a mathematical appendix covering, logic, real analysis, calculus and probability theory. The methods employed have many applications in various disciplines including comparative politics, international relations and American politics. Political Game Theory is tailored to students without extensive backgrounds in mathematics, and traditional economics, however there are also many special sections that present technical material that will appeal to more advanced students. A large number of exercises are also provided to practice the skills and techniques discussed.

Is Parallel Programming Hard

A History of the Mathematical Theory of Probability from the Time of Pascal to that of Laplace

Statistical Pattern Recognition

John Wiley & Sons Statistical pattern recognition is a very active area of study and research, which has seen many advances in recent years. New and emerging applications - such as data mining, web searching, multimedia data retrieval, face recognition, and cursive handwriting recognition - require robust and efficient pattern recognition techniques. Statistical decision making and estimation are regarded as fundamental to the study of pattern recognition. Statistical Pattern Recognition, Second Edition has been fully updated with new methods, applications and references. It provides a comprehensive introduction to this vibrant area - with material drawn from engineering, statistics, computer science

and the social sciences - and covers many application areas, such as database design, artificial neural networks, and decision support systems. * Provides a self-contained introduction to statistical pattern recognition. * Each technique described is illustrated by real examples. * Covers Bayesian methods, neural networks, support vector machines, and unsupervised classification. * Each section concludes with a description of the applications that have been addressed and with further developments of the theory. * Includes background material on dissimilarity, parameter estimation, data, linear algebra and probability. * Features a variety of exercises, from 'open-book' questions to more lengthy projects. The book is aimed primarily at senior undergraduate and graduate students studying statistical pattern recognition, pattern processing, neural networks, and data mining, in both statistics and engineering departments. It is also an excellent source of reference for technical professionals working in advanced information development environments.

Hackers Beware

Sams Publishing Explains how and why hackers break into computers, steal information, and deny services to machines' legitimate users, and discusses strategies and tools used by hackers and how to defend against them.

Lifelong Technology-Enhanced Learning

13th European Conference on Technology Enhanced Learning, EC-TEL 2018, Leeds, UK, September 3-5, 2018, Proceedings

Springer This book constitutes the proceedings of the 13th European Conference on Technology Enhanced Learning, EC-TEL 2018, held in Leeds, UK, in September 2018. The 42 full and short papers, 7 demo papers, and 23 poster papers presented in this volume were carefully reviewed and selected from 142 submissions. This year, the European Conference on Technology-Enhanced Learning (EC-TEL) will engage researchers, practitioners, educational developers, entrepreneurs and policy makers in a joint discussion on how to put science, technology and practice at the service of learning to embrace these challenges on the topic: Lifelong technology enhanced learning: Dealing with the complexity of 21st century challenges. /div Chapter "" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Modern Robotics

Cambridge University Press A modern and unified treatment of the mechanics, planning, and control of robots, suitable for a first course in robotics.

Elementary Fuzzy Matrix Theory and Fuzzy Models for Social Scientists

Infinite Study

Photogrammetric Computer Vision

Statistics, Geometry, Orientation and Reconstruction

Springer This textbook offers a statistical view on the geometry of multiple view analysis, required for camera calibration and orientation and for geometric scene reconstruction based on geometric image features. The authors have backgrounds in geodesy and also long experience with development and research in computer vision, and this is the first book to present a joint approach from the converging fields of photogrammetry and computer vision. Part I of the book provides an introduction to estimation theory, covering aspects such as Bayesian estimation, variance components, and sequential estimation, with a focus on the statistically sound diagnostics of estimation results essential in vision metrology.

Part II provides tools for 2D and 3D geometric reasoning using projective geometry. This includes oriented projective geometry and tools for statistically optimal estimation and test of geometric entities and transformations and their relations, tools that are useful also in the context of uncertain reasoning in point clouds. Part III is devoted to modelling the geometry of single and multiple cameras, addressing calibration and orientation, including statistical evaluation and reconstruction of corresponding scene features and surfaces based on geometric image features. The authors provide algorithms for various geometric computation problems in vision metrology, together with mathematical justifications and statistical analysis, thus enabling thorough evaluations. The chapters are self-contained with numerous figures and exercises, and they are supported by an appendix that explains the basic mathematical notation and a detailed index. The book can serve as the basis for undergraduate and graduate courses in photogrammetry, computer vision, and computer graphics. It is also appropriate for researchers, engineers, and software developers in the photogrammetry and GIS industries, particularly those engaged with statistically based geometric computer vision methods.

An Introduction to Inertial Confinement Fusion

CRC Press Newcomers to the field of inertial confinement fusion (ICF) often have difficulty establishing a clear picture of the overall field. The reason for this is because, while there are many books devoted to special topics within the field, there is none that provides an overview of the field as a whole. An Introduction to Inertial Confinement Fusion fi

Wireless Physical Layer Network Coding

Discover a new, network-aware coding strategy that uses existing signal interactions to enhance network efficiency, capacity and security.

The Copernicus Project

The Copernicus spacecraft, to be launched on May 4, 2009, is designed for scientific exploration of the planet Pluto. The main objectives of this exploration is to accurately determine the mass, density, and composition of the two bodies in the Pluto-Charon system. A further goal of the exploration is to obtain precise images of the system. The spacecraft will be designed for three axis stability control. It will use the latest technological advances to optimize the performance, reliability, and cost of the spacecraft. Due to the long duration of the mission, nominally 12.6 years, the spacecraft will be powered by a long lasting radioactive power source. Although this type of power may have some environmental drawbacks, currently it is the only available source that is suitable for this mission. The planned trajectory provides flybys of Jupiter and Saturn. These flybys provide an opportunity for scientific study of these planets in addition to Pluto. The information obtained on these flybys will supplement the data obtained by the Voyager and Galileo missions. The topics covered include: (1) scientific instrumentation; (2) mission management, planning, and costing; (3) power and propulsion system; (4) structural subsystem; (5) command, control, and communication; and (6) attitude and articulation control. Barnstable, Bob and Polte, Hans and Kepes, Paul and Walker, Kevin and Jacobs, Jeff and Williams, Stephen Unspecified Center...

Introduction to the New Mainframe

Z/OS Basics

IBM.Com/Redbooks "This IBM® Redbook provides students of information systems technology with the background knowledge and skills necessary to begin using the basic facilities of a mainframe computer. It is the first in a planned series of textbooks designed to introduce students to mainframe concepts and help prepare them for a career in large systems computing. For optimal learning, students are assumed to have successfully completed an introductory course in computer system concepts, such as computer organization and architecture, operating systems, data management, or data communications. They should also have successfully completed courses in one or more programming languages, and be PC literate. This textbook can also be used as a prerequisite for courses in advanced topics or for internships and special studies. It is not intended to be a complete text covering all aspects of mainframe operation, nor is it a reference book that discusses every feature and option of the mainframe facilities. Others who will benefit from this course include experienced data processing professionals who have worked with non-mainframe platforms, or who are familiar with some aspects of the mainframe but want to become

knowledgeable with other facilities and benefits of the mainframe environment."--Preface, p. xi.

Calculus: Early Transcendentals

Cengage Learning James Stewart's Calculus series is the top-seller in the world because of its problem-solving focus, mathematical precision and accuracy, and outstanding examples and problem sets. Selected and mentored by Stewart, Daniel Clegg and Saleem Watson continue his legacy of providing students with the strongest foundation for a STEM future. Their careful refinements retain Stewart's clarity of exposition and make the 9th Edition even more useful as a teaching tool for instructors and as a learning tool for students. Showing that Calculus is both practical and beautiful, the Stewart approach enhances understanding and builds confidence for millions of students worldwide. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

VSAM Demystified

IBM Redbooks Virtual Storage Access Method (VSAM) is one of the access methods used to process data. Many of us have used VSAM and work with VSAM data sets daily, but exactly how it works and why we use it instead of another access method is a mystery. This book helps to demystify VSAM and gives you the information necessary to understand, evaluate, and use VSAM properly. This book also builds upon the subject of Record Level Sharing and DFSMStvs. It clarifies VSAM functions for application programmers who work with VSAM. The practical, straightforward approach should dispel much of the complexity associated with VSAM. Wherever possible an example is used to reinforce a description of a VSAM function. This IBM® Redbooks® publication is intended as a supplement to existing product manuals. It is intended to be used as an initial point of reference for VSAM functions.

Statistical Modeling and Computation

Springer Science & Business Media This textbook on statistical modeling and statistical inference will assist advanced undergraduate and graduate students. Statistical Modeling and Computation provides a unique introduction to modern Statistics from both classical and Bayesian perspectives. It also offers an integrated treatment of Mathematical Statistics and modern statistical computation, emphasizing statistical modeling, computational techniques, and applications. Each of the three parts will cover topics essential to university courses. Part I covers the fundamentals of probability theory. In Part II, the authors introduce a wide variety of classical models that include, among others, linear regression and ANOVA models. In Part III, the authors address the statistical analysis and computation of various advanced models, such as generalized linear, state-space and Gaussian models. Particular attention is paid to fast Monte Carlo techniques for Bayesian inference on these models. Throughout the book the authors include a large number of illustrative examples and solved problems. The book also features a section with solutions, an appendix that serves as a MATLAB primer, and a mathematical supplement.

Neural Networks and Statistical Learning

Springer Nature This book provides a broad yet detailed introduction to neural networks and machine learning in a statistical framework. A single, comprehensive resource for study and further research, it explores the major popular neural network models and statistical learning approaches with examples and exercises and allows readers to gain a practical working understanding of the content. This updated new edition presents recently published results and includes six new chapters that correspond to the recent advances in computational learning theory, sparse coding, deep learning, big data and cloud computing. Each chapter features state-of-the-art descriptions and significant research findings. The topics covered include: • multilayer perceptron; • the Hopfield network; • associative memory models;• clustering models and algorithms; • t he radial basis function network; • recurrent neural networks; • nonnegative matrix factorization; • independent component analysis; •probabilistic and Bayesian networks; and • fuzzy sets and logic. Focusing on the prominent accomplishments and their practical aspects, this book provides academic and technical staff, as well as graduate students and researchers with a solid foundation and comprehensive reference on the fields of neural networks, pattern recognition, signal processing, and machine learning.

Augmented Reality Game Development

Packt Publishing Ltd Create your own augmented reality games from scratch with Unity 5 About This Book Create your own augmented reality game from scratch and join the virtual reality gaming revolution Use the latest Unity 5 VR SDK to create pro-level AR games like Pokemon Go Innovate and explore the latest and most promising trend of AR gaming in the mobile gaming industry Who This Book Is For This book is for those who have a basic knowledge of game development techniques, but no previous knowledge of Unity is required. Some basic programming knowledge would be desirable, but the book is an introduction to the topic. The book is also suitable for experienced developers new to GIS or GPS development. What You Will Learn Build a location-based augmented reality game called Foodie Go Animate a player's avatar on a map Use the mobile device's camera as a game background Implement database persistence with SQLLite4Unity3D to carry inventory items across game sessions Create basic UI elements for the game, inventory, menu, and settings Perform location and content searches against the Google Places API Enhance the game's mood by adding visual shader effects Extend the game by adding multiplayer networking and other enhancements In Detail The heyday of location-based augmented reality games is upon us. They have been around for a few years, but the release of Pokemon Go was a gamechanger that catalyzed the market and led to a massive surge in demand. Now is the time for novice and experienced developers alike to turn their good ideas into augmented reality (AR) mobile games and meet this demand! If you are keen to develop virtual reality games with the latest Unity 5 toolkit, then this is the book for you. The genre of location-based AR games introduces a new platform and technical challenges, but this book will help simplify those challenges and show how to maximize your game audience. This book will take you on a journey through building a location-based AR game that addresses the core technical concepts: GIS fundamentals, mobile device GPS, mapping, map textures in Unity, mobile device camera, camera textures in Unity, accessing location-based services, and other useful Unity tips. The technical material also discusses what is necessary for further development to create a multiplayer version of the game. At the end, you will be presented with troubleshooting techniques in case you get into trouble and need a little help. Style and approach This book shows you how to create every step of the game and gives practical examples.

Classical Systems in Quantum Mechanics

Springer Nature This book investigates two possibilities for describing classical-mechanical physical systems along with their Hamiltonian dynamics in the framework of quantum mechanics.The first possibility consists in exploiting the geometrical properties of the set of quantum pure states of "microsystems" and of the Lie groups characterizing the specific classical system. The second approach is to consider quantal systems of a large number of interacting subsystems – i.e. macrosystems, so as to study the quantum mechanics of an infinite number of degrees of freedom and to look for the behaviour of their collective variables. The final chapter contains some solvable models of "quantum measurement" describing dynamical transitions from "microsystems" to "macrosystems".

Stability of Structures

Elastic, Inelastic, Fracture and Damage Theories

World Scientific A crucial element of structural and continuum mechanics, stability theory has limitless applications in civil, mechanical, aerospace, naval and nuclear engineering. This text of unparalleled scope presents a comprehensive exposition of the principles and applications of stability analysis. It has been proven as a text for introductory courses and various advanced courses for graduate students. It is also prized as an exhaustive reference for engineers and researchers. The authors' focus on understanding of the basic principles rather than excessive detailed solutions, and their treatment of each subject proceed from simple examples to general concepts and rigorous formulations. All the results are derived using as simple mathematics as possible. Numerous examples are given and 700 exercise problems help in attaining a firm grasp of this central aspect of solid mechanics. The book is an unabridged republication of the 1991 edition by Oxford University Press and the 2003 edition by Dover, updated with 18 pages of end notes.

Practical Image and Video Processing Using MATLAB

John Wiley & Sons 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.

Foundations of Signal Processing

Cambridge University Press This comprehensive and accessible textbook introduces students to the basics of modern signal processing techniques.

Multimedia Tools and Applications for Environmental & Biodiversity Informatics

Springer This edited volume focuses on the latest and most impactful advancements of multimedia data globally available for environmental and earth biodiversity. The data reflects the status, behavior, change as well as human interests and concerns which are increasingly crucial for understanding environmental issues and phenomena. This volume addresses the need for the development of advanced methods, techniques and tools for collecting, managing, analyzing, understanding and modeling environmental & biodiversity data, including the automated or collaborative species identification, the species distribution modeling and their environment, such as the air quality or the bio-acoustic monitoring. Researchers and practitioners in multimedia and environmental topics will find the chapters essential to their continued studies.

Stream Processing with Apache Spark

Mastering Structured Streaming and Spark Streaming

O'Reilly Media Before you can build analytics tools to gain quick insights, you first need to know how to process data in real time. With this practical guide, developers familiar with Apache Spark will learn how to put this in-memory framework to use for streaming data. You'll discover how Spark enables you to write streaming jobs in almost the same way you write batch jobs. Authors Gerard Maas and François Garillot help you explore the theoretical underpinnings of Apache Spark. This comprehensive guide features two sections that compare and contrast the streaming APIs Spark now supports: the original Spark Streaming library and the newer Structured Streaming API. Learn fundamental stream processing concepts and examine different streaming architectures Explore Structured Streaming through practical examples; learn different aspects of stream processing in detail Create and operate streaming jobs and applications with Spark Streaming; integrate Spark Streaming with other Spark APIs Learn advanced Spark Streaming techniques, including approximation algorithms and machine learning algorithms Compare Apache Spark to other stream processing projects, including Apache Storm, Apache Flink, and Apache Kafka

Streams

High Voltage and Electrical Insulation Engineering

John Wiley & Sons High Voltage and Electrical Insulation Engineering A comprehensive graduate-level textbook on high voltage insulation engineering, updated to reflect emerging trends and techniques in the field High Voltage and Electrical Insulation Engineering presents systematic coverage of the behavior of dielectric materials. This classic textbook opens with clear explanations of fundamental terminology, electric-field classification, and field estimation techniques. Subsequent chapters describe the field dependent performance of gaseous, vacuum, liquid, and solid dielectrics under different classified field conditions, and illustrate the monitoring of electrical insulation conditions by both single and continuous online methods. Throughout the text, numerous tables, figures, diagrams, and images are provided to strengthen understanding of all material. Fully revised to incorporate the most current technological application techniques, the second edition offers an entirely new section on condition monitoring of electrical insulation. Updated chapters discuss recent developments in gas-filled power apparatus, present-day trends in the use replacement of liquid insulating materials, the latest applications of new solid dielectrics in high voltage engineering, vacuum technology and liquid insulating materials, and more. This edition features a brand-new case study exploring the estimation of clearance requirements for 25 kV electric traction. Readers will also find the new edition: Provides new coverage of advances in the field, such as the application of polymer insulators and the use of SF6 gas and its mixtures in gas-insulated systems/substations (GIS) Uses a novel approach that explores the field dependent behavior of dielectrics Explains the "weakly nonuniform field," a unique concept introduced both conceptually and analytically in Germany A separate chapter provides the new approach to the mechanism of lightning phenomenon, which also includes the phenomenon of "Ball Lightning" The dielectric properties of vacuum and the development in the application of vacuum technology in power circuit breakers is covered in an exclusive chapter In-depth coverage of the performance of the sulphur-hexafluoride gas and its mixtures applicable to the design of Gas Insulated Systems including dry power transformers High Voltage and Electrical Insulation Engineering, Second Edition, remains the perfect textbook for graduate students, teachers, academic researchers, and utility and power industry engineers and scientists involved in the field.

Trends and Innovations in Information Systems and Technologies

Volume 1

Springer Nature This book gathers selected papers presented at the 2020 World Conference on Information Systems and Technologies (WorldCIST'20), held in Budva, Montenegro, from April 7 to 10, 2020. WorldCIST provides a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences with and challenges regarding various aspects of modern information systems and technologies. The main topics covered are A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human–Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; and N) Technologies for Biomedical Applications.

Open Source GIS: A GRASS GIS Approach

Springer Science & Business Media Since the first edition of Open Source GIS: A GRASS GIS Approach was published in 2002, GRASS has undergone major improvements. This second edition includes numerous updates related to the new development; its text is based on the GRASS 5.3 version from December 2003. Besides changes related to GRASS 5.3 enhancements, the introductory chapters have been re-organized, providing more extensive information on import of external data. Most of the improvements in technical accuracy and clarity were based on valuable feedback from readers. Open Source GIS: A GRASS GIS Approach, Second Edition, provides updated information about the use of GRASS, including geospatial modeling with raster, vector, and site data, image processing, visualization, and coupling with other open source tools for geostatistical analysis and web applications. A brief introduction to programming within GRASS encourages new development. The sample data set used throughout the book has been updated and is available on the GRASS web site. This book also includes links to sites where the GRASS software and on-line reference manuals can be downloaded and additional applications can be viewed.

Multivariate Geostatistics

An Introduction with Applications

Springer Science & Business Media An introduction to geostatistics stressing the multivariate aspects for scientists, engineers and statisticians. The book presents a brief review of statistical concepts, a detailed introduction to linear geostatistics, and an account of three basic methods of multivariate analysis. Applications from very different areas of science, as well as exercises with solutions, are provided to help convey the general ideas. In this second edition, the chapters regarding normal kriging and cokriging have been restructured and the section on non-stationary geostatistics has been entirely rewritten.

Understanding Policy-Based Networking

John Wiley & Sons Get the big picture on policy networking with this guide from one of the leaders of policy-based standards efforts With the advent of policy servers, network administrators no longer have to create data traffic rules (policy) by hand. This book will sort out the hype from the reality for this important advance in networking. The authors provide examples and case studies as well as product roadmaps and suggestions for possible migration paths from the old labor-intensive management to next-generation PBNs (policy-based networks). Readers will learn more about the first network services set up for policy-based management including Quality of Service (QoS), the Resource Reservation Protocol (RSVP) in Win2000, the LDAP directory technology, and other services nearing standards completion.

Advances in Social Simulation

Proceedings of the 15th Social Simulation Conference: 23–27 September 2019

Springer This book presents the state of the art in social simulation as presented at the Social Simulation Conference 2019 in Mainz, Germany. It covers the developments in applications and methods of social simulation, addressing societal issues such as socio-ecological systems and policymaking. Methodological issues discussed include large-scale empirical calibration, model sharing and interdisciplinary research, as well as decision-making models, validation and the use of qualitative data in simulation modeling. Research areas covered include archaeology, cognitive science, economics, organization science and social simulation education. This book gives readers insight into the increasing use of social simulation in both its theoretical development and in practical applications such as policymaking whereby modeling and the behavior of complex systems is key. The book appeals to students, researchers and professionals in the various fields.