

The Design And Analysis Of Algorithms Nitin Upadhyay

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Innovations in Electrical and Electronic Engineering - Margarita N. Favorskaya 2020-07-25

The book is a compilation of selected papers from 2020 International Conference on Electrical and Electronics Engineering (ICEEE 2020) held in National Power Training Institute HQ (Govt. of India) on February 21 – 22, 2020. The work focuses on the current development in the fields of electrical and electronics engineering like power generation, transmission and distribution, renewable energy sources and technology, power electronics and applications, robotics, artificial intelligence and IoT, control, and automation and instrumentation, electronics devices, circuits and systems, wireless and optical communication, RF and microwaves, VLSI, and signal processing. The book is beneficial for readers from both academia and industry.

The SAGE Encyclopedia of Research Design - Bruce B. Frey 2022-01-27

The SAGE Encyclopedia of Research Design maps out how one makes decisions about research design, interprets data, and draws valid inferences, undertakes research projects in an ethical manner, and evaluates experimental design strategies and results. From A-to-Z, this four-volume work covers the spectrum of research design strategies and topics including, among other things: fundamental research design principles, ethics in the research process, quantitative versus qualitative and mixed-method designs, completely randomized designs, multiple comparison tests, diagnosing agreement between data and models, fundamental assumptions in analysis of variance, factorial treatment designs, complete and incomplete block designs, Latin square and related designs, hierarchical designs, response surface designs, split-plot designs, repeated measures designs, crossover designs, analysis of covariance, statistical software packages, and much more. Research design, with its statistical underpinnings, can be especially daunting for students and novice researchers. At its heart, research design might be described simply as a formalized approach toward problem solving, thinking, and acquiring knowledge, the success of which depends upon clearly defined objectives and appropriate choice of statistical design and analysis to meet those objectives. The SAGE Encyclopedia of Research Design will assist students and researchers with their work while providing vital information on research strategies.

Constraint Handling Rules - Compilation, Execution, and Analysis - Thom Frühwirth 2018-01-16

Constraint Handling Rules (CHR) is both a theoretical formalism and a practical programming language. This book provides an overview of CHR research based on a reviewed selection of doctoral theses. After a basic introduction to CHR, the book presents results from three different areas of CHR research: compilation and optimization, the execution strategies, and program analysis. The chapters offer in-depth treatises of selected subjects, supported by a wealth of examples. The book is ideal for master students, lecturers, and researchers.

Design and Analysis of Algorithms - Sandeep Sen 2019-05-23

Focuses on the interplay between algorithm design and the underlying computational models.

Concept of Adaptive Filtering & Spline Adaptive Filtering Algorithm - Shivendra Nandan

A spline adaptive filter (SAF) based nonlinear active noise control (ANC) system is proposed in this paper. The SAF consists of a linear network of adaptive weights in a cascade with an adaptive nonlinear network. The nonlinear network, in turn consists of an adaptive look-up table followed by a spline interpolation network and forms an adaptive activation function. An update rule has been derived for the proposed ANC system, which not only updates the weights of the linear network, but also updates the nature of the activation function. Linear Network is based on improvement in FxLMS algorithm. FxLMS algorithm is used because it is computationally simple like the most commonly used Least Mean Square (LMS) algorithm. In addition, it includes secondary path effects. To make the FxLMS algorithm more effective, the secondary path estimation should be more precise and accurate. The nonlinear function involved in the adaptation process is based on a spline function that can be modified during learning. The spline control points are adaptively changed using gradient-based techniques. B-splines and Catmull-Rom splines are used, because they allow imposing simple constraints on control parameters. This new kind of adaptive function is then applied to the output of a linear adaptive filter and it is used for the identification of Wiener-type nonlinear systems. In addition, we derive a simple form of the adaptation algorithm and an upper bound on the choice of the step-size. An extensive simulation study has been conducted to evaluate the noise mitigation performance of the proposed scheme and the new method has been shown to provide improved noise cancellation efficiency with a lesser computational load in comparison with other popular ANC systems.

Networking Communication and Data Knowledge Engineering - Gregorio Martinez Perez 2017-11-13

Data science, data engineering and knowledge engineering requires networking and communication as a backbone and have wide scope of implementation in engineering sciences. Keeping this ideology in preference, this book includes the insights that reflect the advances in these fields from upcoming researchers and leading academicians across the globe. It contains high-quality peer-reviewed papers of 'International Conference on Recent Advancement in Computer, Communication and Computational Sciences (ICRACCCS 2016)', held at Janardan Rai Nagar Rajasthan Vidyapeeth University, Udaipur, India, during 25–26 November 2016. The volume covers variety of topics such as Advanced Communication Networks, Artificial Intelligence and Evolutionary Algorithms, Advanced Software Engineering and Cloud Computing, Image Processing and Computer Vision, and Security. The book will help the perspective readers from computer industry and academia to derive the advances of next generation communication and computational technology and shape them into real life applications.

Introduction to Algorithms - Thomas H. Cormen 2009-07-31

This edition has been revised and updated throughout. It includes some new chapters. It features improved

treatment of dynamic programming and greedy algorithms as well as a new notion of edge-based flow in the material on flow networks.--[book cover].

Fundamentals of Deep Learning - Nikhil Buduma 2017-05-25

With the reinvigoration of neural networks in the 2000s, deep learning has become an extremely active area of research, one that's paving the way for modern machine learning. In this practical book, author Nikhil Buduma provides examples and clear explanations to guide you through major concepts of this complicated field. Companies such as Google, Microsoft, and Facebook are actively growing in-house deep-learning teams. For the rest of us, however, deep learning is still a pretty complex and difficult subject to grasp. If you're familiar with Python, and have a background in calculus, along with a basic understanding of machine learning, this book will get you started. Examine the foundations of machine learning and neural networks Learn how to train feed-forward neural networks Use TensorFlow to implement your first neural network Manage problems that arise as you begin to make networks deeper Build neural networks that analyze complex images Perform effective dimensionality reduction using autoencoders Dive deep into sequence analysis to examine language Learn the fundamentals of reinforcement learning

Ideas That Created the Future - Harry R. Lewis 2021-02-02

Classic papers by thinkers ranging from Aristotle and Leibniz to Norbert Wiener and Gordon Moore that chart the evolution of computer science. *Ideas That Created the Future* collects forty-six classic papers in computer science that map the evolution of the field. It covers all aspects of computer science: theory and practice, architectures and algorithms, and logic and software systems, with an emphasis on the period of 1936-1980 but also including important early work. Offering papers by thinkers ranging from Aristotle and Leibniz to Alan Turing and Norbert Wiener, the book documents the discoveries and inventions that created today's digital world. Each paper is accompanied by a brief essay by Harry Lewis, the volume's editor, offering historical and intellectual context.

Analysis and Design of Algorithms - Anuradha A. Puntambekar 2020-12-01

This well-organized textbook provides the design techniques of algorithms in a simple and straight forward manner. The book begins with a description of the fundamental concepts such as algorithm, functions and relations, vectors and matrices. Then it focuses on efficiency analysis of algorithms. In this unit, the technique of computing time complexity of the algorithm is discussed along with illustrative examples. Gradually, the text discusses various algorithmic strategies such as divide and conquer, dynamic programming, Greedy algorithm, backtracking and branch and bound. Finally the string matching algorithms and introduction to NP completeness is discussed. Each algorithmic strategy is explained in stepwise manner, followed by examples and pseudo code. Thus this book helps the reader to learn the analysis and design of algorithms in the most lucid way.

The Design and Analysis of Algorithms - Dexter C. Kozen 2012-12-06

These are my lecture notes from CS681: Design and Analysis of Algorithms, a one-semester graduate course I taught at Cornell for three consecutive fall semesters from '88 to '90. The course serves a dual purpose: to cover core material in algorithms for graduate students in computer science preparing for their PhD qualifying exams, and to introduce theory students to some advanced topics in the design and analysis of algorithms. The material is thus a mixture of core and advanced topics. At first I meant these notes to supplement and not supplant a textbook, but over the three years they gradually took on a life of their own. In addition to the notes, I depended heavily on the texts • A. V. Aho, J. E. Hopcroft, and J. D. Ullman, *The Design and Analysis of Computer Algorithms*. Addison-Wesley, 1975. • M. R. Garey and D. S. Johnson, *Computers and Intractability: A Guide to the Theory of NP-Completeness*. W. H. Freeman, 1979. • R. E. Tarjan, *Data Structures and Network Algorithms*. SIAM Regional Conference Series in Applied Mathematics 44, 1983. and still recommend them as excellent references.

Utilization of Electric Power and Electric Traction - J. B. Gupta 1978

Crossbar-Based Interconnection Networks - Mohsen Jahanshahi 2018-04-10

This unique text/reference provides an overview of crossbar-based interconnection networks, offering novel perspectives on these important components of high-performance, parallel-processor systems. A particular focus is placed on solutions to the blocking and scalability problems. Topics and features: introduces the fundamental concepts in interconnection networks in multi-processor systems, including issues of blocking, scalability, and crossbar networks; presents a classification of interconnection networks, and provides information on recognizing each of the networks; examines the challenges of blocking and scalability, and analyzes the different solutions that have been proposed; reviews a variety of different approaches to improve fault tolerance in multistage interconnection networks; discusses the scalable crossbar network, which is a non-blocking interconnection network that uses small-sized crossbar switches as switching elements. This invaluable work will be of great benefit to students, researchers and practitioners interested in computer networks, parallel processing and reliability engineering. The text is also essential reading for course modules on interconnection network design and reliability.

After the Digital Tornado - Kevin Werbach 2020-07-23

Networks powered by algorithms are pervasive. Major contemporary technology trends—Internet of Things, Big Data, Digital Platform Power, Blockchain, and the Algorithmic Society—are manifestations of this phenomenon. The internet, which once seemed an unambiguous benefit to society, is now the basis for invasions of privacy, massive concentrations of power, and wide-scale manipulation. The algorithmic networked world poses deep questions about power, freedom, fairness, and human agency. The influential 1997 Federal Communications Commission whitepaper “Digital Tornado” hailed the “endless spiral of connectivity” that would transform society, and today, little remains untouched by digital connectivity. Yet fundamental questions remain unresolved, and even more serious challenges have emerged. This important collection, which offers a reckoning and a foretelling, features leading technology scholars who explain the legal, business, ethical, technical, and public policy challenges of building pervasive networks and algorithms for the benefit of humanity. This title is also available as Open Access on Cambridge Core.

Artificial Intelligence and Speech Technology - Amita Dev 2021-06-29

The 2nd International Conference on Artificial Intelligence and Speech Technology (AIST2020) was organized by Indira Gandhi Delhi Technical University for Women, Delhi, India on November 19–20, 2020. AIST2020 is dedicated to cutting-edge research that addresses the scientific needs of academic researchers and industrial professionals to explore new horizons of knowledge related to Artificial Intelligence and Speech Technologies. AIST2020 includes high-quality paper presentation sessions revealing the latest research findings, and engaging participant discussions. The main focus is on novel contributions which would open new opportunities for providing better and low-cost solutions for the betterment of society. These include the use of new AI-based approaches like Deep Learning, CNN, RNN, GAN, and others in various speech related issues like speech synthesis, speech recognition, etc.

Design and Analysis of Modular Architectures for an RNS to Mixed Radix Conversion Multi-processor - Nithin Shivashankar 2014

Cryptography is the study of techniques for secure communication in the presence of unknown threats or adversaries. It is used to hide data that is being exchanged between two or more concerned parties from the view of external parties. It is used to encode communications such as e-mail, telephones, bank transactions, credit card transactions, electronic signatures, military applications, etc. In this thesis we develop a Verilog design which

implements algorithms for secure information exchange. Our design uses a residue number system which is then converted into a mixed radix number system. Several algorithms are used to implement these computations in Verilog. We analyze our design for area, power and timing by simulating its performance using the Altera Modelsim and Quartus II tools.

The Constitution of Algorithms - Florian Jatón 2021-04-27

A laboratory study that investigates how algorithms come into existence. Algorithms--often associated with the terms big data, machine learning, or artificial intelligence--underlie the technologies we use every day, and disputes over the consequences, actual or potential, of new algorithms arise regularly. In this book, Florian Jatón offers a new way to study computerized methods, providing an account of where algorithms come from and how they are constituted, investigating the practical activities by which algorithms are progressively assembled rather than what they may suggest or require once they are assembled.

Advances in Computing and Communications, Part I - Ajith Abraham 2011-07-08

This volume is the first part of a four-volume set (CCIS 190, CCIS 191, CCIS 192, CCIS 193), which constitutes the refereed proceedings of the First International Conference on Computing and Communications, ACC 2011, held in Kochi, India, in July 2011. The 68 revised full papers presented in this volume were carefully reviewed and selected from a large number of submissions. The papers are organized in topical sections on ad hoc networks; advanced micro architecture techniques; autonomic and context-aware computing; bioinformatics and bio-computing; cloud, cluster, grid and P2P computing; cognitive radio and cognitive networks; cyber forensics; database and information systems.

Algorithms Unlocked - Thomas H. Cormen 2013-03-01

For anyone who has ever wondered how computers solve problems, an engagingly written guide for nonexperts to the basics of computer algorithms. Have you ever wondered how your GPS can find the fastest way to your destination, selecting one route from seemingly countless possibilities in mere seconds? How your credit card account number is protected when you make a purchase over the Internet? The answer is algorithms. And how do these mathematical formulations translate themselves into your GPS, your laptop, or your smart phone? This book offers an engagingly written guide to the basics of computer algorithms. In *Algorithms Unlocked*, Thomas Cormen—coauthor of the leading college textbook on the subject—provides a general explanation, with limited mathematics, of how algorithms enable computers to solve problems. Readers will learn what computer algorithms are, how to describe them, and how to evaluate them. They will discover simple ways to search for information in a computer; methods for rearranging information in a computer into a prescribed order (“sorting”); how to solve basic problems that can be modeled in a computer with a mathematical structure called a “graph” (useful for modeling road networks, dependencies among tasks, and financial relationships); how to solve problems that ask questions about strings of characters such as DNA structures; the basic principles behind cryptography; fundamentals of data compression; and even that there are some problems that no one has figured out how to solve on a computer in a reasonable amount of time.

Transforming Social Media Business Models Through Blockchain - Nitin Upadhyay 2019-11-05

Blockchain has the potential to disrupt and transform the social media business space. Nitin Upadhyay in this book delves into an insightful discussion of the pertinent and potential implications of blockchain technology on the social media business model in a uniquely accessible way.

Machine Learning and Deep Learning in Efficacy Improvement of Healthcare Systems - Om Prakash Jena 2022-05-18

The goal of medical informatics is to improve life expectancy, disease diagnosis and quality of life. Medical devices have revolutionized healthcare and have led to the modern age of machine learning, deep learning and Internet of

Medical Things (IoMT) with their proliferation, mobility and agility. This book exposes different dimensions of applications for computational intelligence and explains its use in solving various biomedical and healthcare problems in the real world. This book describes the fundamental concepts of machine learning and deep learning techniques in a healthcare system. The aim of this book is to describe how deep learning methods are used to ensure high-quality data processing, medical image and signal analysis and improved healthcare applications. This book also explores different dimensions of computational intelligence applications and illustrates its use in the solution of assorted real-world biomedical and healthcare problems. Furthermore, it provides the healthcare sector with innovative advances in theory, analytical approaches, numerical simulation, statistical analysis, modelling, advanced deployment, case studies, analytical results, computational structuring and significant progress in the field of machine learning and deep learning in healthcare applications. **FEATURES** Explores different dimensions of computational intelligence applications and illustrates its use in the solution of assorted real-world biomedical and healthcare problems Provides guidance in developing intelligence-based diagnostic systems, efficient models and cost-effective machines Provides the latest research findings, solutions to the concerning issues and relevant theoretical frameworks in the area of machine learning and deep learning for healthcare systems Describes experiences and findings relating to protocol design, prototyping, experimental evaluation, real testbeds and empirical characterization of security and privacy interoperability issues in healthcare applications Explores and illustrates the current and future impacts of pandemics and mitigates risk in healthcare with advanced analytics This book is intended for students, researchers, professionals and policy makers working in the fields of public health and in the healthcare sector. Scientists and IT specialists will also find this book beneficial for research exposure and new ideas in the field of machine learning and deep learning.

Wireless Algorithms, Systems, and Applications - Xiuzhen Cheng 2006-10-11

This book constitutes the refereed proceedings of the First Annual International Conference on Wireless Algorithms, Systems, and Applications, WASA 2006, held in Xi'an, China in August 2006. The book presents 63 revised full papers together with 2 invited keynote speech abstracts, organized in topical sections on wireless PAN and wireless LAN, wireless MAN and pervasive computing, data management, mobility, localization and topology control, performance modeling and analysis, security and more.

Mathematical Reviews - 2005

Theory of Computer Science - K. L. P. Mishra 2006-01-01

This Third Edition, in response to the enthusiastic reception given by academia and students to the previous edition, offers a cohesive presentation of all aspects of theoretical computer science, namely automata, formal languages, computability, and complexity. Besides, it includes coverage of mathematical preliminaries. **NEW TO THIS EDITION** • Expanded sections on pigeonhole principle and the principle of induction (both in Chapter 2) • A rigorous proof of Kleene's theorem (Chapter 5) • Major changes in the chapter on Turing machines (TMs) – A new section on high-level description of TMs – Techniques for the construction of TMs – Multitape TM and nondeterministic TM • A new chapter (Chapter 10) on decidability and recursively enumerable languages • A new chapter (Chapter 12) on complexity theory and NP-complete problems • A section on quantum computation in Chapter 12. • **KEY FEATURES** • Objective-type questions in each chapter—with answers provided at the end of the book. • Eighty-three additional solved examples—added as Supplementary Examples in each chapter. • Detailed solutions at the end of the book to chapter-end exercises. The book is designed to meet the needs of the undergraduate and postgraduate students of computer science and engineering as well as those of the students offering courses in computer applications.

Predictive Data Mining - Sholom M. Weiss 1998

This book is the first technical guide to provide a complete, generalized road map for developing data-mining applications, together with advice on performing these large-scale, open-ended analyses for real-world data warehouses.

Design and Analysis of Algorithms - Parag H. Dave 2007-09

"All aspects pertaining to algorithm design and algorithm analysis have been discussed over the chapters in this book-- Design and Analysis of Algorithms"--Resource description page.

Friendship Love And Killer Escapades - Pankaj Giri 2015-07-01

Prakash Bharti: a shy, self-effacing, spiritually-inclined simpleton from Gangtok; Purvesh Shroff: a cocky, strapping young lad from Mumbai; Richa Malhotra: a sweet, vivacious girl from Bangalore; Anand Kumar Rajput: a mysterious, enigmatic personality from Jharkhand. Friendship, Love and Killer Escapades (FLAKE) is a captivating story, primarily revolving around four protagonists pursuing engineering courses in a run-of-the-mill institute in Bangalore. The story encompasses a unique, intriguing, realistic love plot between Purvesh and Richa, numerous escapades, and thrilling adventures. Throughout the four-year roller-coaster, the academic and personal fortunes of the chief personas fluctuates à la the great Indian stock market! What impact will the inscrutable character, Anand, have in the lives of Prakash and the other protagonists? Will Purvesh and Richa succeed in sustaining their relationship over time? Will Prakash be able to transcend the stage of infatuation and eventually fall in love? What predicaments will Prakash and friends encounter in the academic journey? Read more to find out. Ready, FLAKE, Go!

Algorithmic Learning Theory - Hiroki Arimura 2003-06-29

This book constitutes the refereed proceedings of the 11th International Conference on Algorithmic Learning Theory, ALT 2000, held in Sydney, Australia in December 2000. The 22 revised full papers presented together with three invited papers were carefully reviewed and selected from 39 submissions. The papers are organized in topical sections on statistical learning, inductive logic programming, inductive inference, complexity, neural networks and other paradigms, support vector machines.

Handbook of Algorithms for Wireless Networking and Mobile Computing - Azzedine Boukerche 2005-11-28

Most of the available literature in wireless networking and mobile computing concentrates on the physical aspect of the subject, such as spectrum management and cell re-use. In most cases, a description of fundamental distributed algorithms that support mobile hosts in a wireless environment is either not included or is only briefly discussed.

Computational Intelligence and Predictive Analysis for Medical Science - Poonam Tanwar 2021-11-08

This book uncovers stakes and possibilities offered by Computational Intelligence and Predictive Analytics to Medical Science. The main focus is on data technologies, classification, analysis and mining, information retrieval, and in the algorithms needed to elaborate the informations. A section with use cases and applications follows the two main parts of the book, respectively dedicated to the foundations and techniques of the discipline.

Proceedings of the International Conference on Paradigms of Communication, Computing and Data Sciences -

Mohit Dua 2022-01-01

This book gathers selected high-quality research papers presented at the International Conference on Paradigms of Communication, Computing and Data Sciences (PCCDS 2021), held at the National Institute of Technology, Kurukshetra, India, during May 07–09, 2021. It discusses high-quality and cutting-edge research in the areas of advanced computing, communications, and data science techniques. The book is a collection of latest research articles in computation algorithm, communication, and data sciences, intertwined with each other for efficiency.

Proceedings of First International Conference on Smart System, Innovations and Computing - Arun K. Somani 2018-01-08

The edited volume contains original papers contributed to 1st International Conference on Smart System,

Innovations and Computing (SSIC 2017) by researchers from different countries. The contributions focuses on two main areas, i.e. Smart Systems Innovations which includes applications for smart cities, smart grid, social computing and privacy challenges with their theory, specification, design, performance, and system building. And second Computing of Complex Solutions which includes algorithms, security solutions, communication and networking approaches. The volume provides a snapshot of current progress in related areas and a glimpse of future possibilities. This volume is useful for researchers, Ph.D. students, and professionals working in the core areas of smart systems, innovations and computing.

The Design And Analysis Of Algorithms - Nitin Upadhyay 2008

This book provides a study of computer algorithms. The book is applicable for courses in data structures, algorithms and analysis.

Third Congress on Intelligent Systems - Sandeep Kumar 2023-03-11

This book is a collection of selected papers presented at the Third Congress on Intelligent Systems (CIS 2022), organized by CHRIST (Deemed to be University), Bangalore, India, under the technical sponsorship of the Soft Computing Research Society, India, during September 5–6, 2022. It includes novel and innovative work from experts, practitioners, scientists, and decision-makers from academia and industry. It covers topics such as the Internet of Things, information security, embedded systems, real-time systems, cloud computing, big data analysis, quantum computing, automation systems, bio-inspired intelligence, cognitive systems, cyber-physical systems, data analytics, data/web mining, data science, intelligence for security, intelligent decision-making systems, intelligent information processing, intelligent transportation, artificial intelligence for machine vision, imaging sensors technology, image segmentation, convolutional neural network, image/video classification, soft computing for machine vision, pattern recognition, human-computer interaction, robotic devices and systems, autonomous vehicles, intelligent control systems, human motor control, game playing, evolutionary algorithms, swarm optimization, neural network, deep learning, supervised learning, unsupervised learning, fuzzy logic, rough sets, computational optimization, and neuro-fuzzy systems.

Software Engineering Methods in Intelligent Algorithms - Radek Silhavy 2019-05-07

This book presents software engineering methods in the context of the intelligent systems. It discusses real-world problems and exploratory research describing novel approaches and applications of software engineering, software design and algorithms. The book constitutes the refereed proceedings of the Software Engineering Methods in Intelligent Algorithms Section of the 8th Computer Science On-line Conference 2019 (CSOC 2019), held on-line in April 2019.

Introduction to Algorithms, third edition - Thomas H. Cormen 2009-07-31

The latest edition of the essential text and professional reference, with substantial new material on such topics as vEB trees, multithreaded algorithms, dynamic programming, and edge-based flow. Some books on algorithms are rigorous but incomplete; others cover masses of material but lack rigor. Introduction to Algorithms uniquely combines rigor and comprehensiveness. The book covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers. Each chapter is relatively self-contained and can be used as a unit of study. The algorithms are described in English and in a pseudocode designed to be readable by anyone who has done a little programming. The explanations have been kept elementary without sacrificing depth of coverage or mathematical rigor. The first edition became a widely used text in universities worldwide as well as the standard reference for professionals. The second edition featured new chapters on the role of algorithms, probabilistic analysis and randomized algorithms, and linear programming. The third edition has been revised and updated throughout. It includes two completely new chapters, on van Emde Boas trees and multithreaded algorithms, substantial additions to the chapter on recurrence (now called "Divide-and-Conquer"), and an appendix

on matrices. It features improved treatment of dynamic programming and greedy algorithms and a new notion of edge-based flow in the material on flow networks. Many exercises and problems have been added for this edition. The international paperback edition is no longer available; the hardcover is available worldwide.

Introduction to Algorithms, fourth edition - Thomas H. Cormen 2022-04-05

A comprehensive update of the leading algorithms text, with new material on matchings in bipartite graphs, online algorithms, machine learning, and other topics. Some books on algorithms are rigorous but incomplete; others cover masses of material but lack rigor. *Introduction to Algorithms* uniquely combines rigor and comprehensiveness. It covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers, with self-contained chapters and algorithms in pseudocode. Since the publication of the first edition, *Introduction to Algorithms* has become the leading algorithms text in universities worldwide as well as the standard reference for professionals. This fourth edition has been updated throughout. New for the fourth edition: New chapters on matchings in bipartite graphs, online algorithms, and machine learning. New material on topics including solving recurrence equations, hash tables, potential functions, and suffix arrays. 140 new exercises and 22 new problems. Reader feedback—informed improvements to old problems. Clearer, more personal, and gender-neutral writing style. Color added to improve visual presentation. Notes, bibliography, and index updated to reflect developments in the field. Website with new supplementary material. Warning: Avoid counterfeit copies of *Introduction to Algorithms* by buying only from reputable retailers. Counterfeit and pirated copies are incomplete and contain errors.

Ethics of Data and Analytics - Kirsten Martin 2022-05-13

The ethics of data and analytics, in many ways, is no different than any endeavor to find the "right" answer. When a business chooses a supplier, funds a new product, or hires an employee, managers are making decisions with moral implications. The decisions in business, like all decisions, have a moral component in that people can benefit or be harmed, rules are followed or broken, people are treated fairly or not, and rights are enabled or diminished. However, data analytics introduces wrinkles or moral hurdles in how to think about ethics. Questions of accountability, privacy, surveillance, bias, and power stretch standard tools to examine whether a decision is good, ethical, or just. Dealing with these questions requires different frameworks to understand what is wrong and what could be better. *Ethics of Data and Analytics: Concepts and Cases* does not search for a new, different answer or to

ban all technology in favor of human decision-making. The text takes a more skeptical, ironic approach to current answers and concepts while identifying and having solidarity with others. Applying this to the endeavor to understand the ethics of data and analytics, the text emphasizes finding multiple ethical approaches as ways to engage with current problems to find better solutions rather than prioritizing one set of concepts or theories. The book works through cases to understand those marginalized by data analytics programs as well as those empowered by them. Three themes run throughout the book. First, data analytics programs are value-laden in that technologies create moral consequences, reinforce or undercut ethical principles, and enable or diminish rights and dignity. This places an additional focus on the role of developers in their incorporation of values in the design of data analytics programs. Second, design is critical. In the majority of the cases examined, the purpose is to improve the design and development of data analytics programs. Third, data analytics, artificial intelligence, and machine learning are about power. The discussion of power—who has it, who gets to keep it, and who is marginalized—weaves throughout the chapters, theories, and cases. In discussing ethical frameworks, the text focuses on critical theories that question power structures and default assumptions and seek to emancipate the marginalized.

Introduction to Algorithms, fourth edition - Thomas H. Cormen 2022-04-05

A comprehensive update of the leading algorithms text, with new material on matchings in bipartite graphs, online algorithms, machine learning, and other topics. Some books on algorithms are rigorous but incomplete; others cover masses of material but lack rigor. *Introduction to Algorithms* uniquely combines rigor and comprehensiveness. It covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers, with self-contained chapters and algorithms in pseudocode. Since the publication of the first edition, *Introduction to Algorithms* has become the leading algorithms text in universities worldwide as well as the standard reference for professionals. This fourth edition has been updated throughout. New for the fourth edition: • New chapters on matchings in bipartite graphs, online algorithms, and machine learning • New material on topics including solving recurrence equations, hash tables, potential functions, and suffix arrays • 140 new exercises and 22 new problems • Reader feedback—informed improvements to old problems • Clearer, more personal, and gender-neutral writing style • Color added to improve visual presentation • Notes, bibliography, and index updated to reflect developments in the field • Website with new supplementary material

Data Structures And Algorithms Using C - Nitin Upadhyay 2007-01-01