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POBI0B - ANGELINA DILLON

Decision Making Applications in Modern Power Systems presents an enhanced decision-making framework for power systems. Designed as an introduction to enhanced electricity system analysis using decision-making tools, it provides an overview of the different elements, levels and actors involved within an integrated framework for decision-making in the power sector. In addition, it presents a state-of-play on current energy systems, strategies, alternatives, viewpoints and priorities in support of decision-making in the electric power sector, including discussions of energy storage and smart grids. As a practical training guide on theoretical developments and the application of advanced methods for practical electrical energy engineering problems, this reference is ideal for use in establishing medium-term and long-term strategic plans for the electric power and energy sectors. Provides panoramic coverage of state-of-the-art energy systems, strategies and priorities in support of electrical power decision-making Introduces innovative research outcomes, programs, algorithms and approaches to address challenges in understanding, creating and managing complex techno-socio-economic engineering systems Includes practical training on theoretical developments and the application of advanced methods for realistic electrical energy engineering problems

University Physics is designed for the two- or three-semester calculus-based physics course. The text has been developed to meet the scope and sequence of most university physics courses and provides a foundation for a career in mathematics, science, or engineering. The book provides an important opportunity for students to learn the core concepts of physics and understand how those concepts apply to their lives and to the world around them. Due to the comprehensive nature of the material, we are offering the book in three volumes for flexibility and efficiency. Coverage and Scope Our University Physics textbook adheres to the scope and sequence of most two- and three--semester physics courses nationwide. We have worked to make physics interesting and accessible to students while maintaining the mathematical rigor inherent in the subject. With this objective in mind, the content of this textbook has been developed and arranged to provide a logical progression from fundamental to more advanced concepts, building upon what students have already learned and emphasizing connections between topics and between theory and applications. The goal of each section is to enable students not just to recognize concepts, but to work with them in ways that will be useful in later courses and future careers. The organization and pedagogical features were developed and vetted with feedback from science educators dedicated to the project. VOLUME I Unit 1: Mechanics Chapter 1: Units and Measurement Chapter 2: Vectors Chapter 3: Motion Along a Straight Line Chapter 4: Motion in Two and Three Dimensions Chapter 5: Newton's Laws of Motion Chapter 6: Applications of Newton's Laws Chapter 7: Work and Kinetic Energy Chapter 8: Potential Energy and Conservation of Energy Chapter 9: Linear Momentum and Collisions Chapter 10: Fixed-Axis Rotation Chapter 11: Angular Momentum Chapter 12: Static Equilibrium and Elasticity Chapter 13: Gravitation Chapter 14: Fluid Mechanics Unit 2: Waves and Acoustics Chapter 15: Oscillations Chapter 16: Waves Chapter 17: Sound

This volume constitutes the proceedings of the 12th International Conference on Cloud Computing, CLOUD 2019, held as part of the Services Conference Federation, SCF 2019, in San Diego, CA, USA, in June 2019. The 24 full papers were carefully reviewed and selected from 53 submissions. CLOUD has been a prime international forum for both researchers and industry practitioners to exchange the latest fundamental advances in the state of the art and practice of cloud computing, to identify emerging research topics, and to define the future of cloud computing. All topics regarding cloud computing align with the theme of CLOUD.

Implementing energy-efficient CPUs and peripherals as well as reducing resource consumption have become emerging trends in computing. As computers increase in speed and power, their energy issues become more and more prevalent. The need to develop and promote environmentally friendly computer technologies and systems has also come to the forefront

This volume presents the proceedings of the 6th International ICST Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness and of the Third International ICST Workshop on Advanced Architectures and Algorithms for Internet DElivery and Applications. Both events were held in Las Palmas de Gran Canaria in November 2009. To each of these events is devoted a specific part of the volume. The first part is dedicated to the proceedings of ICST QShine 2009. The first four chapters deal with new issues concerning the quality of service in IP-based telephony and multimedia. A second set of four chapters addresses some important research problems in mul- hop wireless networks, with a special emphasis on the problems of routing. The following three papers deal with recent advances in the field of data mana- ment and area coverage in sensor networks, while a fourth set of chapters deals with mobility and context-aware services. The fifth set of chapters contains new works in the area of Internet delivery and switching systems. The following chapters of the QShine part of the volume are devoted to papers in the areas of resource management in wireless networks, overlay, P2P and SOA arc- tectures. Some works also deal with the optimization of quality of service and energy consumption in WLAN and sensor networks and on the design of a mobility support in mesh networks.

"This book focuses on wireless sensor networks and their operation, covering topics including routing, energy efficiency and management"--

Study guide for the New York State Regents Physics Exam.

This year, the IFIP Working Conference on Distributed and Parallel Embedded Sys tems (DIPES 2008) is held as part of the IFIP World Computer Congress, held in Milan on September 7 10, 2008. The embedded systems world has a great deal of experience with parallel and distributed computing. Many embedded computing systems require the high performance that can be delivered by parallel computing. Parallel and distributed computing are often the only ways to deliver adequate real time performance at low power levels. This year's conference attracted 30 submissions, of which 21 were accepted. Prof. Jor¨ g Henkel of the University of Karlsruhe graciously contributed a keynote address on embedded computing and reliability. We would like to thank all of the program committee members for their diligence. Wayne Wolf, Bernd Kleinjohann, and Lisa Kleinjohann Acknowledgements We would like to thank all people involved in the organization of the IFIP World Computer Congress 2008, especially the IPC Co Chairs Judith Bishop and Ivo De Lotto, the Organization Chair Giulio Occhini, as well as the Publications Chair John Impagliazzo. Further thanks go to the authors for their valuable contributions to DIPES 2008. Last but not least we would like to acknowledge the considerable amount of work and enthusiasm spent by our colleague Claudius Stern in preparing theproceedingsofDIPES2008. Hemadeitpossibletoproducethemintheircurrent professional and homogeneous style.

This book covers the important aspects involved in making cognitive radio devices portable, mobile and green, while also extending their service life. At the same time, it presents a variety of established theories and practices concerning cognitive radio from academia and industry. Cognitive radio can be utilized as a backbone communication medium for wireless devices. To effectively achieve its commercial application, various aspects of quality of service and energy management need to be addressed. The topics covered in the book include energy management and quality of service provisioning at Layer 2 of the protocol stack from the perspectives of medium access control, spectrum selection, and self-coexistence for cognitive radio networks.

Enjoy the ride of your life with the Wall Street Journal bestseller None of us can expect to get through life without any challenges. Life isn't always a constant daydream of unbridled pleasure and happiness. But that doesn't mean you can't approach everything with some zing – a big dose of positive energy is what you need to feel great, be successful and love life! And the international bestselling The Energy Bus can help you live your life in a positive, forward-thinking way. Learn the 10 secrets that will help you overcome adversity and harness the power of positive, infectious energy, so that you can create your own success. International bestselling author Jon Gordon draws on his experience of working with thousands of leaders and teams to provide insights, actionable strategies and positive energy. The Energy Bus: Shows you how to ditch negativity and infuse your life with positive energy Provides tools to build a positive team and culture Contains insights from working with some of the world's largest companies Foreword by Ken Blanchard, co-author of The One-Minute Manager

Provides a comprehensive overview of wireless computing in medicine, with technological, medical, and legal advances This book brings together the latest work of leading scientists in the disciplines of Computing, Medicine, and Law, in the field of Wireless Health. The book is organized into three main sections. The first section discusses the use of distributed computing in medicine. It concentrates on methods for treating chronic diseases and cognitive disabilities like Alzheimer's, Autism, etc. It also discusses how to improve portability and accuracy of monitoring instruments and reduce the redundancy of data. It emphasizes the privacy and security of using such devices. The role of mobile sensing, wireless power and Markov decision process in distributed computing is also examined. The second section covers nanomedicine and discusses how the drug delivery strategies for chronic diseases can be efficiently improved by Nanotechnology enabled materials and devices such as MENs and Nanorobots. The authors will also explain how to use DNA computation in medicine, model brain disorders and detect bio-markers using nanotechnology. The third section will focus on the legal and privacy issues, and how to implement these technologies in a way that is a safe and ethical. Defines the technologies of distributed wireless health, from software that runs cloud computing data centers, to the technologies that allow new sensors to work Explains the applications of nanotechnologies to prevent, diagnose and cure disease Includes case studies on how the technologies covered in the book are being implemented in the medical field, through both the creation of new medical applications and their integration into current systems Discusses pervasive computing's organizational benefits to hospitals and health care organizations, and their ethical and legal challenges Wireless Computing in Medicine: From Nano to Cloud with Its Ethical and Legal Implications is written as a reference for computer engineers working in wireless computing, as well as medical and legal professionals. The book will also serve students in the fields of advanced computing, nanomedicine, health informatics, and technology law.

University Physics is a three-volume collection that meets the scope and sequence requirements for two- and three-semester calculus-based physics courses. Volume 1 covers mechanics, sound, oscillations, and waves. Volume 2 covers thermodynamics, electricity and magnetism, and Volume 3 covers optics and modern physics. This textbook emphasizes connections between between theory and application, making physics concepts interesting and accessible to students while maintaining the mathematical rigor inherent in the subject. Frequent, strong examples focus on how to approach a problem, how to work with the equations, and how to check and generalize the result. The text and images in this textbook are grayscale.

This book reports on the proceeding of the 5th International Conference on Intelligent, Interactive Systems and Applications (IISA 2020), held in Shanghai, China, on September 25–27, 2020. The IISA proceedings, with the latest scientific findings, and methods for solving intriguing problems, are a reference for state-of-the-art works on intelligent and interactive systems. This book covers nine interesting and current topics on different systems' orientations, including Analytical Systems, Database Management Systems, Electronics Systems, Energy Systems, Intelligent Systems, Network Systems, Optimization Systems, and Pattern Recognition Systems and Applications. The chapters included in this book cover significant recent developments in the field, both in terms of theoretical foundations and their practical application. An important characteristic of the works included here is the novelty of the solution approaches to the most interesting applications of intelligent and interactive systems.

A relative newcomer to the field of wireless communications, ad hoc networking is growing quickly, both in its importance and its applications. With rapid advances in hardware, software, and protocols, ad hoc networks are now coming of age, and the time has come to bring together into one reference their principles, technologies, and techniques. The Handbook of Ad Hoc Wireless Networks

does exactly that. Experts from around the world have joined forces to create the definitive reference for the field. From the basic concepts, techniques, systems, and protocols of wireless communication to the particulars of ad hoc network routing methods, power, connections, traffic management, and security, this handbook covers virtually every aspect of ad hoc wireless networking. It includes a section that explores several routing methods and protocols directly related to implementing ad hoc networks in a variety of applications. The benefits of ad hoc wireless networks are many, but several challenges remain. Organized for easy reference, The Handbook of Ad Hoc Wireless Networks is your opportunity to gain quick familiarity with the state of the art, have at your disposal the only complete reference on the subject available, and prepare to meet the technological and implementation challenges you'll encounter in practice.

Tectonic geomorphology is the study of the interplay betweentectonic and surface processes that shape the landscape in regionsof active deformation. Recent advances in the quantification ofrates and physical basis of tectonic and surface processes haverejuvenated the field of tectonic geomorphology. Modern tectonicgeomorphology is an exciting and highly integrative field whichutilizes techniques and data derived from studies of geomorphology,seismology, geochronology, structure, geodesy, and Quaternaryclimate change. While emphasizing new insights from the last decadeof research, Tectonic Geomorphology reviews the fundamentals of thesubject which include the nature of faulting and folding, thecreation and use of geomorphic markers for tracing deformation,chronological techniques which date deformation, geodetictechniques for defining recent deformation, and paleoseismologicapproaches to calibrate past deformation. The overall focus of this book is on new interpretations oflandform evolution and insights on the interplay between surface-processes and tectonics that emerge from integrative studies. Theauthors have developed an up--to-date interpretation of landscapesin tectonically active environments for upper-level undergraduateand graduate earth science students and practicinggeologists. For an instructor's image bank, please visit: http://www.geol.ucsb.edu/faculty/burbank First text to take a broad interdisciplinary approach:integrated geomorphology, geophysics, and paleoclimatology. Includes the latest technological advances used in dating:Uranium series and dating and observation. Emphasizes the role of surface processes. Focuses on landscapes at different time scales. Provides strong coverage on numerical modeling of tectonicallyactive landscapes. Presents the recent approaches to calibrating rates of upliftand erosion. Stresses the tectonics of active plate margins in a detailedyet succinct way. Contains "Chapter introductions," "Chapter summaries," and"References" that reinforce principles and theory as well asprovide additional background information.

This book constitutes the refereed proceedings of the 22nd International Conference on Integrated Circuit and System Design, PATMOS 2012, held in Newcastle, UK Spain, in September 2012. The 25 revised full papers presented were carefully reviewed and selected from numerous submissions. The paper feature emerging challenges in methodologies and tools for the design of upcoming generations of integrated circuits and systems, including reconfigurable hardware such as FPGAs. The technical program focus on timing, performance and power consumption as well as architectural aspects with particular emphasis on modeling, design, characterization, analysis and optimization.

This brief introduces wireless communications ideas and techniques into the study of networked control systems. It focuses on state estimation problems in which sensor measurements (or related quantities) are transmitted over wireless links to a central observer. Wireless communications techniques are used for energy resource management in order to improve the performance of the estimator when transmission occurs over packet dropping links, taking energy use into account explicitly in Kalman filtering and control. The brief allows a reduction in the conservatism of control designs by taking advantage of the assumed. The brief shows how energy-harvesting-based rechargeable batteries or storage devices can offer significant advantages in the deployment of large-scale wireless sensor and actuator networks by avoiding the cost-prohibitive task of battery replacement and allowing self-sustaining sensor to be operation. In contrast with research on energy harvesting largely focused on resource allocation for wireless communication systems design, this brief optimizes estimation objectives such as minimizing the expected estimation error covariance. The resulting power control problems are often stochastic control problems which take into account both system and channel dynamics. The authors show how to pose and solve such design problems using dynamic programming techniques. Researchers and graduate students studying networked control systems will find this brief a helpful source of new ideas and research approaches.

Introducing technology students to basic concepts of physics and its applications through interesting, practical examples (such as karate as an example of impulse), this book covers topics in statics, mechanics, fluids, heat, vibrations and sound, light, atomic physics, nuclear physics and electronics. Special applications include simple machines, heat engines, optical instruments and solid-state electronics. The text also covers a number of applications not treated in other textbooks, including integrated circuits, x-ray identification of elements, optical spectroscopy and holography, and the use of density measurement as a tool for nondestructive chemical analysis. Each chapter contains a large number of worked examples.

The Energy Internet: An Open Energy Platform to Transform Legacy Power Systems into Open Innovation and Global Economic Engines is an innovative concept that changes the way people generate, distribute and consume electrical energy. With the potential to transform the infrastructure of the electric grid, the book challenges existing power systems, presenting innovative and pioneering theories and technologies that will challenge existing norms on generation and consumption. Researchers, academics, engineers, consultants and policymakers will gain a thorough understanding of the Energy Internet that includes a thorough dissemination of case studies from the USA, China, Japan, Germany and the U.K. The book's editors provide analysis of various enabling technologies and technical solutions, such as control theory, communication, and the social and economic aspects that are central to obtaining a clear appreciation of the potential of this complex infrastructure. Presents the first complete resource on the innovative concept of the Energy Internet Provides a clear analysis of the architecture of the Energy Internet to ensure an understanding of the technologies behind generating, distributing and consuming electricity in this way Includes a variety of global case studies of real-world implementation and pilot projects to thoroughly demonstrate the theoretical, technological and economic considerations

Featuring more than five hundred questions from past Regents exams with worked out solutions and detailed illustrations, this book is integrated with APlusPhysics.com website, which includes online questions and answer forums, videos, animations, and supplemental problems to help you master Regents Physics Essentials.

This book gathers outstanding research papers presented at the International Conference on Information and Communication Technology for Development (ICICTD 2022), held on July 29–30, 2022, at the Institute of Information and Communication Technology (IICT), Khulna University of Engineering & Technology (KUET), Khulna, Bangladesh. The topics covered are ICT in health care, ICT in e--commerce, e-governance, collective intelligence, soft computing, optimization, cloud computing, machine learning, intelligent software, robotics, data science, data security, big data analytics and IoT, information systems, computer network, algorithms, and natural language processing.

This book includes selected papers from the 5th International Conference on Computational Vision and Bio Inspired Computing (ICCVBIC 2021), held in Coimbatore, India, during November 25–26, 2021. This book presents state-of-the-art research innovations in computational vision and bio-inspired techniques. The book reveals the theoretical and practical aspects of bio-inspired computing techniques, like machine learning, sensor-based models, evolutionary optimization and big data modeling and management that make use of effectual computing processes in the bio-inspired systems. It also contributes to the novel research that focuses on developing bio-inspired computing solutions for various domains, such as human–computer interaction, image processing, sensor-based single processing, recommender systems and facial recognition, which play an indispensable part in smart agriculture, smart city, biomedical and business intelligence applications.

This book provides basic and fundamental knowledge of various aspects of energy-aware computing at the component, software, and system level. It provides a broad range of topics dealing with power-, energy-, and temperature-related research areas for individuals from industry and academia.

The College Physics for AP(R) Courses text is designed to engage students in their exploration of physics and help them apply these concepts to the Advanced Placement(R) test. This book is Learning List-approved for AP(R) Physics courses. The text and images in this book are grayscale.

Ad Hoc Wireless Networking is the next big thing in communication. This volume reveals the state-of-the-art of ad hoc wireless networking in addition to giving the fundamentals of routing protocols. It covers the topics of security, TCP performance over wireless links, power conservation, location discovery, scalability, proactivity, routing protocols, computational geometry, and more. The 15 self-contained chapters are authored by experts in wireless networking and mobile computing. Audience: Both specialists and uninformed readers will find this volume stimulating and helpful.

em style="mso-bidi-font-style: normal;"Energy Harvesting Wireless Communications offers a review of the most current research as well as the basic concepts, key ideas and powerful tools of energy harvesting wireless communications. Energy harvesting is both renewable and cheap and has the potential for many applications in future wireless communication systems to power transceivers by utilizing environmental energy such as solar, thermal, wind, and kinetic energy. The authors—noted experts in the field—explore the power allocation for point-to-point energy harvesting channels, power allocation for multi-node energy harvesting channels, and cross-layer design for energy harvesting links. In addition, they offer an in-depth examination of energy harvesting network optimization and cover topics such as energy harvesting ad hoc networks, cost aware design for energy harvesting assisted cellular networks, and energy harvesting in next generation cellular networks.

• New York Times bestseller • The 100 most substantive solutions to reverse global warming, based on meticulous research by leading scientists and policymakers around the world “At this point in time, the Drawdown book is exactly what is needed; a credible, conservative solution-by--solution narrative that we can do it. Reading it is an effective inoculation against the widespread perception of doom that humanity cannot and will not solve the climate crisis. Reported by-effects include increased determination and a sense of grounded hope.” —Per Espen Stoknes, Author, What We Think About When We Try Not To Think About Global Warming “There’s been no real way for ordinary people to get an understanding of what they can do and what impact it can have. There remains no single, comprehensive, reliable compendium of carbon-reduction solutions across sectors. At least until now. . . . The public is hungry for this kind of practical wisdom.” —David Roberts, Vox “This is the ideal environmental sciences textbook—only it is too interesting and inspiring to be called a textbook.” —Peter Kareiva, Director of the Institute of the Environment and Sustainability, UCLA In the face of widespread fear and apathy, an international coalition of researchers, professionals, and scientists have come together to offer a set of realistic and bold solutions to climate change. One hundred techniques and practices are described here—some are well known; some you may have never heard of. They range from clean energy to educating girls in lower-income countries to land use practices that pull carbon out of the air. The solutions exist, are economically viable, and communities throughout the world are currently enacting them with skill and determination. If deployed collectively on a global scale over the next thirty years, they represent a credible path forward, not just to slow the earth’s warming but to reach drawdown, that point in time when greenhouse gases in the atmosphere peak and begin to decline. These measures promise cascading benefits to human health, security, prosperity, and well-being—giving us every reason to see this planetary crisis as an opportunity to create a just and livable world.

Provides a systematic overview of a hot research area, examining the principles and theories of energy harvesting communications This book provides a detailed and advanced level introduction to the fundamentals of energy harvesting techniques and their use in state-of-the-art communications systems. It fills the gap in the market by covering both basic techniques in energy harvesting and advanced topics in wireless communications. More importantly, it discusses the application of energy harvesting in communications systems to give readers at different levels a full understanding of these most recent advances in communications technologies. The first half of Energy Harvesting Communications: Principles and Theories focuses on the challenges brought by energy harvesting in communications. The second part of the book looks at different communications applications enhanced by energy harvesting. It offers in-depth chapters that: discuss different energy sources harvested for communications; examine the energy harvesters used for widely used sources; study the physical layer and upper layer of the energy harvesting communications device; and investigate wireless powered communications, energy harvesting cognitive radios, and energy harvesting relaying as applications. Methodically examines the state-of-the-art of energy harvesting techniques Provides comprehensive coverage from basic energy harvesting sources and devices to the end users of these sources and devices Looks at the fundamental principles of energy harvesting communications, and biomedical application and intra-body communications Written in a linear order so that beginners can learn the subject and experienced users can attain a broader view Written by a renowned expert in the field, Energy Harvesting Communications: Principles and Theories is an excellent resource for students, researchers, and others interested in the subject.

Green Communications and Networking introduces novel solutions that can bring about significant reductions in energy consumption in the information and communication technology (ICT) industry-as well as other industries, including electric power. Containing the contributions of leading experts in the field, it examines the latest research advances

Latest Edition Explores Fresh, New Alternatives to Fossil FuelsThe Science of Renewable Energy, Second Edition takes a look at ways to produce sustainable and reliable energy sources and presents practical examples along with scientific methods, models, observations, and tools. Developed by

esteemed author Frank R. Spellman, this book includes inpu

With Bluetooth Low Energy (BLE), smart devices are about to become even smarter. This practical guide demonstrates how this exciting wireless technology helps developers build mobile apps that share data with external hardware, and how hardware engineers can gain easy and reliable access to mobile operating systems. This book provides a solid, high-level overview of how devices use BLE to communicate with each other. You'll learn useful low-cost tools for developing and testing BLE-enabled mobile apps and embedded firmware and get examples using various development platforms—including iOS and Android for app developers and embedded platforms for product designers and hardware engineers. Understand how data is organized and transferred by BLE devices Explore BLE's concepts, key limitations, and network topology Dig into the protocol stack to grasp how and why BLE operates Learn how BLE devices discover each other and establish secure connections Set up the tools and infrastructure for BLE application development Get examples for connecting BLE to iPhones, iPads, Android devices, and sensors Develop code for a simple device that transmits heart rate data to a mobile device

This volume is the third 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 70 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 security, trust and privacy; sensor networks; signal and image processing; soft computing techniques; system software; vehicular communications networks.

This book constitutes the refereed proceedings of the First International Workshop on Self-Organizing Systems, IWSOS 2006. The book offers 16 revised full papers and 6 revised short papers together with 2 invited talks and 3 poster papers. The papers are organized in topical sections on dynamics of structured and unstructured overlays, self-organization in peer-to-peer networks, self-organization in wireless environments, self-organization in distributed and grid computing, self-managing and autonomic computing, and more.

Packet delay and energy consumption are important considerations in wireless and sensor networks as these metrics directly affect the quality of service of the application and the resource consumption of the network; especially, for a rapidly growing class of real-time applications that impose strict restrictions on packet delays. Dynamic rate control is a novel technique for adapting the transmission rate of wireless devices, almost in real-time, to opportunistically exploit time-varying channel conditions as well as changing traffic patterns. Since power consumption is not a linear function of the rate and varies significantly with the channel conditions, adapting the rate has significant benefits in minimizing energy consumption. These benefits have prompted significant research in developing algorithms for achieving optimal rate adaptation while satisfying quality of service requirements. In this book, we provide a comprehensive study of dynamic rate control for energy minimization under packet delay constraints. We present several formulations and approaches adopted in the literature ranging from discrete-time formulations and dynamic programming based solutions to continuous-time approaches utilizing ideas from network calculus and stochastic optimal control theory. The goal of this book is to expose the reader to the important problem of wireless data transmission with delay constraints and to the rich set of tools developed in recent years to address it. Table of Contents: Introduction / Transmission Rate Adaptation under Deadline Constraints / Average Delay Constraints

We are living in the era of "Big Data" and the computing power required to deal with "Big Data" both in terms of its energy consumption and technical complexity is one of the key areas of research and development. The U.S. Environmental Protection Agency estimates that centralized computing infrastructures (data centres) currently use 7 giga watts of electricity during peak loads. This translates into about 61 billion kilowatt hours of electricity used. By the EPA's estimates, power-hungry data centres consume the annual output of 15 average-sized power plants. One of the top constraints to increasing computing power, besides the ability to cool, is simply delivering enough power to a given physical space. Green Information Technology: A Sustainable Approach offers in a single volume a broad collection of practical techniques and methodologies for designing, building and implementing a green technology strategy in any large enterprise environment, which up until now has been scattered in difficult-to-find scholarly resources. Included here is the latest information on emerging technologies and their environmental impact, how to effectively measure sustainability, discussions on sustainable hardware and software design, as well as how to use big data and cloud computing to drive efficiencies and establish a framework for sustainability in the information technology infrastructure. Written by recognized experts in both academia and industry, Green Information Technology: A Sustainable Approach is a must-have guide for researchers, computer architects, computer engineers and IT professionals with an interest in greater efficiency with less environmental impact. Introduces the concept of using green procurement and supply chain programs in the IT infrastructure. Discusses how to use big data to drive efficiencies and establish a framework for sustainability in the information technology infrastructure. Explains how cloud computing can be used to consolidate corporate IT environments using large-scale shared infrastructure reducing the overall environmental impact and unlocking new efficiencies. Provides specific use cases for Green IT such as data center energy efficiency and cloud computing sustainability and risk.

The latest trends in information technology represent a new intellectual paradigm for scientific exploration and the visualization of scientific phenomena. This title covers the emerging technologies in the field. Academics, engineers, industrialists, scientists and researchers engaged in teaching, and research and development of computer science and information technology will find the book useful for their academic and research work.

"This reference is a comprehensive collection of recent case studies, theories, research on digital rights management, and its place in the world today"--