

## Distributed Systems Concepts Sunil Kumar

Directional antenna technologies have made significant advancements in the last decade. These advances have opened the door to many exciting new design opportunities for wireless networks to enhance quality of service (QoS), performance, and network capacity. In this book, experts from around the world present the latest research and development in wireless networks with directional antennas. Their contributed chapters provide detailed coverage of the models, algorithms, protocols, and applications of wireless networks with various types of directional antennas operating at different frequency bands. *Wireless Network Performance Enhancement via Directional Antennas: Models, Protocols, and Systems* identifies several interesting research problems in this important field, providing an opportunity to learn about solid solutions to these issues. It also looks at a number of practical hardware designs for the deployment of next-generation antennas, as well as efficient network protocols for exploitation of directional communications. The book is organized into six sections: Directional Antennas – covers the hardware design of different types of antennas Directional MAC – focuses on the principles of designing medium access control (MAC) protocols for directional networks Millimeter Wave – explores different design aspects of millimeter wave (mm-Wave) systems, which operate in higher-frequency bands (such as 60 GHz) MIMO – explains how to establish a multiple-input, multiple-output (MIMO) antenna system and describes how it operates in a cognitive radio network Advanced Topics – looks at additional topics such as beamforming in cognitive radio networks, multicast algorithm development, network topology management for connectivity, and sensor network lifetime issues Applications – illustrates some important applications, such as military networks and airborne networking, that benefit from directional networking designs With this book, researchers and engineers will be well-equipped to advance the research and development in this important field. If you're new to this field, you will find this book to be a valuable reference on basic directional networking principles, engineering design, and challenges.

This book discusses reliability applications for power systems, renewable energy and smart grids and highlights trends in reliable communication, fault-tolerant systems, VLSI system design and embedded systems. Further, it includes chapters on software reliability and other computer engineering and software management-related disciplines, and also examines areas such as big data analytics and ubiquitous computing. Outlining novel, innovative concepts in applied areas of reliability in electrical, electronics and computer engineering disciplines, it is a valuable resource for researchers and practitioners of reliability theory in circuit-based engineering domains.

Distributed systems intertwine with our everyday lives. The benefits and current shortcomings of the underpinning technologies are experienced by a wide range of people and their smart devices. With the rise of large-scale IoT and similar distributed systems, cloud bursting technologies, and partial outsourcing solutions, private entities are encouraged to increase their efficiency and offer unparalleled availability and reliability to their users. *Applying Integration Techniques and Methods in Distributed Systems* is a critical scholarly publication that defines the current state of distributed systems, determines further goals, and presents architectures and service frameworks to achieve highly integrated distributed systems and presents solutions to integration and efficient management challenges faced by current and future distributed systems. Highlighting topics such as multimedia, programming languages, and smart environments, this book is ideal for system administrators, integrators, designers, developers, researchers, and academicians.

The main objective of this book is to explore the concept of cybersecurity in parallel and distributed computing along with recent research

developments in the field. It also includes various real-time/offline applications and case studies in the fields of engineering and computer science and the modern tools and technologies used. Information on cybersecurity technologies is organized in the fifteen chapters of this book. This important book cover subjects such as: Research and solutions for the problem of hidden image detection Security aspects of data mining and possible solution techniques A comparative analysis of various methods used in e-commerce security and how to perform secure payment transactions in an efficient manner Blockchain technology and how it is crucial to the security industry Security for the Internet of Things Security issues and challenges in distributed computing security such as heterogeneous computing, cloud computing, fog computing, etc. Demonstrates the administration task issue in unified cloud situations as a multi-target enhancement issue in light of security Explores the concepts of cybercrime and cybersecurity and presents the statistical impact it is having on organizations Highlights some strategies for maintaining the privacy, integrity, confidentiality and availability of cyber information and its real-world impacts such as mobile security software for secure email and online banking, cyber health check programs for business, cyber incident response management, cybersecurity risk management Security policies and mechanisms, various categories of attacks (e.g., denial-of-service), global security architecture, along with distribution of security mechanisms Security issues in the healthcare sector with existing solutions and emerging threats.

*Spectrum Sharing in Wireless Networks: Fairness, Efficiency, and Security* provides a broad overview of wireless network spectrum sharing in seven distinct sections: The first section examines the big picture and basic principles, explaining the concepts of spectrum sharing, hardware/software function requirements for efficient sharing, and future trends of sharing strategies. The second section contains more than 10 chapters that discuss differing approaches to efficient spectrum sharing. The authors introduce a new coexistence and sharing scheme for multi-hop networks, describe the space-time sharing concept, introduce LTE-U, and examine sharing in broadcast and unicast environments. They then talk about different cooperation strategies to achieve mutual benefits for primary users (PU) and secondary users (SU), discuss protocols in a spectrum sharing context, and provide different game theory models between PUs and SUs. The third section explains how to model the interactions of PUs and SUs, using an efficient calculation method to determine spectrum availability. Additionally, this section explains how to use scheduling models to achieve efficient SU traffic delivery. The subject of the fourth section is MIMO-oriented design. It focuses on how directional antennas and MIMO antennas greatly enhance wireless network performance. The authors include a few chapters on capacity/rate calculations as well as beamforming issues under MIMO antennas. Power control is covered in the fifth section which also describes the interference-aware power allocation schemes among cognitive radio users and the power control schemes in cognitive radios. The sixth section provides a comprehensive look at security issues, including different types of spectrum sharing attacks and threats as well as corresponding countermeasure schemes. The seventh and final section covers issues pertaining to military applications and examines how the military task protects its data flows when sharing the spectrum with civilian applications.

A hybrid material is defined as a material composed of an intimate mixture of inorganic components, organic components, or both types of components. In the last few years, a tremendous amount of attention has been given towards the development of materials for efficient energy harvesting; nanostructured hybrid materials have also been gaining significant advances to provide pollutant free drinking water, sensing of environmental pollutants, energy storage and conservation. Separately, intensive work on high performing polymer nanocomposites for applications in the automotive, aerospace and construction industries has been carried out, but the aggregation of many fillers, such as clay, LDH, CNT, graphene, represented a major barrier in their development. Only very recently has this problem been overcome by fabrication and applications of 3D hybrid nanomaterials as nanofillers in a variety of polymers. This book, *Hybrid Nanomaterials*,

examines all the recent developments in the research and specially covers the following subjects: Hybrid nanostructured materials for development of advanced lithium batteries High performing hybrid nanomaterials for supercapacitor applications Nanohybrid materials in the development of solar energy applications Application of hybrid nanomaterials in water purification Advanced nanostructured materials in electromagnetic shielding of radiations Preparation, properties and application of hybrid nanomaterials in sensing of environmental pollutants Development of hybrid fillers/polymer nanocomposites for electronic applications High performance hybrid filler reinforced epoxy nanocomposites State-of-the-art overview of elastomer/hybrid filler nanocomposites

This book reports research on policy and legal issues, anaerobic digestion of solid waste under processing aspects, industrial waste, application of GIS and LCA in waste management, and a couple of research papers relating to leachate and odour management.

This volume contains 68 papers presented at SCI 2016: First International Conference on Smart Computing and Informatics. The conference was held during 3-4 March 2017, Visakhapatnam, India and organized communally by ANITS, Visakhapatnam and supported technically by CSI Division V – Education and Research and PRF, Vizag. This volume contains papers mainly focused on smart computing for cloud storage, data mining and software analysis, and image processing.

Distributed Systems Design Concepts Cloud Computing Concepts and Technologies CRC Press

This book constitutes the refereed proceedings of the Third International Conference on Advances in Computing, Communication and Control, ICAC3 2013, held in Mumbai, India, in January 2013. The 69 papers presented in this volume were carefully reviewed and selected for inclusion in the book. They deal with topics such as image processing, artificial intelligence, robotics, wireless communications; data warehousing and mining, and are organized in topical sections named: computing; communication; control; and others.

Current Developments in Biotechnology and Bioengineering: Waste Treatment Processes for Energy Generation provides extensive research on the role of waste management processes/technologies for energy generation. The enormous increase of waste materials generated by human activity and its potentially harmful effects on the environment and public health have led to an increasing awareness of an urgent need to adopt scientific methods for the safe disposal of wastes. This book outlines the basic knowledge, processes and technologies for the generation of energy from waste and functions as an important reference for academics and practitioners at varying levels of interest and knowledge. The book's content encompasses all issues for energy recovery from waste in a very clear and simple manner, acting as a comprehensive resource for anyone seeking an understanding on the topic. Outlines the latest technologies used for waste conversion into energy and facilitates project evaluation based on these technologies Summarizes the pros and cons of various processes Includes case studies and economic analysis

"This book provides the latest research and best practices in the field of mobile computing offering theoretical and pragmatic viewpoints on mobile computing"--Provided by publisher.

This book discusses topics related to bioinformatics, statistics, and machine learning, presenting the latest research in various areas of bioinformatics. It also highlights the role of computing and machine learning in knowledge extraction from biological data, and how this knowledge can be applied in fields such as drug design, health supplements, gene therapy, proteomics and agriculture.

Due to the growing use of web applications and communication devices, the use of data has increased throughout various industries. It is necessary to develop new techniques for managing data in order to ensure adequate usage. The Handbook of Research on Pattern Engineering System Development for Big Data Analytics is a critical scholarly resource that examines the incorporation of pattern management in business technologies as well as decision making and prediction process through the use of data management and analysis. Featuring coverage on a broad range of topics such as business intelligence, feature extraction, and data collection, this publication is geared towards professionals, academicians, practitioners, and researchers seeking current research on the development of pattern management systems for business applications.

Due to the great success and enormous impact of IP networks, Internet access (such as sending and receiving e-mails) and web browsing have become the ruling paradigm for next generation wireless systems. On the other hand, great technological and commercial success of services and applications is being witnessed in mobile wireless communications with examples of cellular, personal voice telephony and wireless LANs. The service paradigm has thus shifted from the conventional voice service to seamlessly integrated high quality multimedia transmission over broadband wireless mobile networks. The multimedia content may include data, voice, audio, image, video and so on. With availability of more powerful portable devices, such as PDA, portable computer and cellular phone, coupled with the easier access to the core network (using a mobile device), the number of mobile users and the demand for multimedia-based applications is increasing rapidly. As a result, there is an urgent need for a system that supports heterogeneous multimedia services and provides seamless access to the desired resources via wireless connections. Therefore, the convergence of multimedia communication and wireless mobile networking technologies into the next generation wireless multimedia (WMM) networks with the vision of "anytime, anywhere, anyform" information system is the certain trend in the foreseeable future. However, successful combination of these two technologies presents many challenges such as available spectral bandwidth, energy efficiency, seamless end-to-end communication, robustness, security, etc.

This contribution book collects reviews and original articles from eminent experts working in the interdisciplinary arena of novel drug delivery systems and their uses. From their direct and recent experience, the readers can achieve a wide vision on the new and ongoing potentialities of different smart drug delivery systems. Since the advent of analytical

techniques and capabilities to measure particle sizes in nanometer ranges, there has been tremendous interest in the use of nanoparticles for more efficient methods of drug delivery. On the other hand, this reference discusses advances in the design, optimization, and adaptation of gene delivery systems for the treatment of cancer, cardiovascular, diabetic, genetic, and infectious diseases, and considers assessment and review procedures involved in the development of gene-based pharmaceuticals.

Distributed systems intertwine with our everyday lives. The benefits and current shortcomings of the underpinning technologies are experienced by a wide range of people and their smart devices. With the rise of large-scale IoT and similar distributed systems, cloud bursting technologies, and partial outsourcing solutions, private entities are encouraged to increase their efficiency and offer unparalleled availability and reliability to their users. The Research Anthology on Architectures, Frameworks, and Integration Strategies for Distributed and Cloud Computing is a vital reference source that provides valuable insight into current and emergent research occurring within the field of distributed computing. It also presents architectures and service frameworks to achieve highly integrated distributed systems and solutions to integration and efficient management challenges faced by current and future distributed systems. Highlighting a range of topics such as data sharing, wireless sensor networks, and scalability, this multi-volume book is ideally designed for system administrators, integrators, designers, developers, researchers, academicians, and students.

The only globally-crowdsourced book on the future of payments (“PayTech”), offering comprehensive understanding of a rapidly evolving industry at the centre of global commerce The movement of money between individuals, organisations and governments is crucial to the world economy. The payments industry has undergone immense transformation – new regulations, technologies and consumer demands have prompted significant changes to the tools, products and use cases in payments, as well as presented lucrative opportunities for entrepreneurs and FinTech professionals. As payment technologies become faster and more efficient, companies and investors are increasingly favouring PayTech innovation due to better customer experience, increased revenues and manageable risks. The PAYTECH Book brings together a diverse collection of industry experts to provide entrepreneurs, financial services professionals and investors with the answers they need to capitalise on the highly profitable PayTech market. Written by leaders in the global FinTech and payment sectors, this informative volume explains key industry developments and presents valuable first-hand insights from prominent industry practitioners. Contributors include advisors and consultants to the payments and financial services industry, entrepreneurs and business owners utilising cutting-edge PayTech capabilities, academic researchers exploring the social-political-economic impact of PayTech and many others. Detailed chapters cover essential topics such as cybersecurity, regulation and compliance, wholesale payments and how payment systems currently work and how PayTech can improve them. This book: Defines PayTech and identifies its key players Discusses how PayTech can transform developed markets and accelerate growth in emerging economies Describes how PayTech fits into the larger FinTech ecosystem Explores the future of PayTech and its potential as an agent of social change and financial inclusion Provides diverse perspectives on investment in PayTech and what consolidation and expansion will look like The PAYTECH Book: The Payment Technology Handbook for Investors, Entrepreneurs and FinTech Visionaries is an indispensable source of information for FinTech investors and entrepreneurs, managers from payments companies and financial services firms and executives responsible for payments in government, corporations, public sector organisations, retailers and users of payments.

The book provides insights from the 2nd International Conference on Communication, Computing and Networking organized by the Department of Computer Science and Engineering, National Institute of Technical Teachers Training and Research, Chandigarh, India on March 29–30, 2018. The book includes contributions in which researchers, engineers, and academicians as well as industrial professionals from around the globe presented their research findings and development activities in the field of Computing Technologies, Wireless Networks, Information Security, Image Processing and Data Science. The book provides opportunities for the readers to explore the literature, identify gaps in the existing works and propose new ideas for research.

This book discusses about the new techniques of power generation control of oscillating water column (OWC) using airflow control and maximum power point tracking of OWC using rotational speed control. OWCs harness energy from the oscillation of the seawater inside a chamber or hollow caused by the action of waves. This book presents the mathematical modeling and control techniques used by OWCs. Introducing new concepts to studies of wave energy to provide fresh perspectives on energy extraction and efficiency problems, the book will be a valuable resource for researchers and industrial companies involved in thermal energy and coastal engineering. It will also be of interest to students, as it broadens their view of wave energy.

"This 10-volume compilation of authoritative, research-based articles contributed by thousands of researchers and experts from all over the world emphasized modern issues and the presentation of potential opportunities, prospective solutions, and future directions in the field of information science and technology"--Provided by publisher.

This edited book is comprised of original research that focuses on technological advancements for effective teaching with an emphasis on learning outcomes, ICT trends in higher education, sustainable developments and digital ecosystem in education, management and industries. The contents of the book are classified as; (i) Emerging ICT Trends in Education, Management and Innovations (ii) Digital Technologies for advancements in education, management and IT (iii) Emerging Technologies for Industries and Education, and (iv) ICT Technologies for Intelligent Applications. The book represents a useful tool for academics, researchers, industry professionals and policymakers to share and learn about the latest teaching and learning practices supported by ICT. It also covers innovative concepts applied in education, management and industries using ICT tools.

Magnetic resonance imaging (MRI) is a scan that uses strong magnetic fields and radio waves to produce detailed images of the inside of the body. This book is a comprehensive guide to the diagnosis and management of neurological infectious diseases using MRI. Divided into four sections, the text begins with an introduction to tropical diseases of the central nervous system, and their epidemiology. The second section provides in depth coverage of the technique of MRI, from the basic principles, to clinical application and more advanced features. The following sections describe use of the technique for both infectious diseases, including tuberculosis, HIV and parasitic diseases; and noninfectious conditions, such as stroke, poisoning and epilepsy. Each chapter features numerous MRI and pathological images and extensive references. Key points Comprehensive guide to diagnosis and management of neurological infectious diseases in tropics using MRI In depth coverage of the technique, from basics to more advanced aspects Covers MRI for both infectious and noninfectious conditions Includes nearly 300 MRI and pathological images

The aim of this book is to provide insight into Data Science and Artificial Learning Techniques based on Industry 4.0, conveys how Machine Learning & Data Science are becoming an essential part of industrial and academic research. Varying from healthcare to social networking and everywhere hybrid models for Data Science, AI, and Machine Learning are being used. The book describes different theoretical and

practical aspects and highlights how new systems are being developed. Along with focusing on the research trends, challenges and future of AI in Data Science, the book explores the potential for integration of advanced AI algorithms, addresses the challenges of Data Science for Industry 4.0, covers different security issues, includes qualitative and quantitative research, and offers case studies with working models. This book also provides an overview of AI and Data Science algorithms for readers who do not have a strong mathematical background.

Undergraduates, postgraduates, academicians, researchers, and industry professionals will benefit from this book and use it as a guide.

Through expanded intelligence, the use of robotics has fundamentally transformed a variety of fields, including manufacturing, aerospace, medicine, social services, and agriculture. Continued research on robotic design is critical to solving various dynamic obstacles individuals, enterprises, and humanity at large face on a daily basis. *Robotic Systems: Concepts, Methodologies, Tools, and Applications* is a vital reference source that delves into the current issues, methodologies, and trends relating to advanced robotic technology in the modern world. Highlighting a range of topics such as mechatronics, cybernetics, and human-computer interaction, this multi-volume book is ideally designed for robotics engineers, mechanical engineers, robotics technicians, operators, software engineers, designers, programmers, industry professionals, researchers, students, academicians, and computer practitioners seeking current research on developing innovative ideas for intelligent and autonomous robotics systems.

With reference to India; contributed articles.

With nearly 7 billion mobile phone subscriptions worldwide, mobility and computing have become pervasive in our society and business. Moreover, new mobile multimedia communication services are challenging telecommunication operators.

To support the significant increase in multimedia traffic—especially video—over wireless networks, new technological infrastructure must be created. Cognitive Radio Networks (CRNs) are widely regarded as one of the most promising technologies for future wireless communications. This book explains how to efficiently deliver video, audio, and other data over CRNs. Covering advanced algorithms, protocols, and hardware-/software-based experiments, this book describes how to encode video in a prioritized way to send to dynamic radio links. It discusses different FEC codes for video reliability and explains how different machine learning algorithms can be used for video quality control. It also explains how to use readily available software tools to build a CRN simulation model. This book explains both theoretical and experimental designs. It describes how universal software radio peripheral (USRP) boards can be used for real-time, high-resolution video transmission. It also discusses how a USRP board can sense the spectrum dynamics and how it can be controlled by GNU Radio software. A separate chapter discusses how the network simulator ns-2 can be used to build a simulated CRN platform.

Contributed papers presented at the conference held on 13-15 December, 2004, at Vellore, India.

As businesses are continuously developing new services, procedures, and standards, electronic business has emerged into an important aspect of the science field by providing various applications through efficiently and rapidly processing information among business partners. Research and Development in E-Business through Service-Oriented Solutions highlights the main concepts of e-business as well as the advanced methods, technologies, and aspects that focus on technical support. This book is an essential reference source of professors, students, researchers, developers, and other industry experts in order to provide a vast amount of specialized knowledge sources for promoting e-business.

Sustainable production of hydrocarbon biofuels from biomass, fuels that are fully compatible with existing internal combustion engines, will allow the global transport economy to transition to a sustainable energy source without the need for capital-intensive new infrastructures. Hydrocarbon Biorefinery: Sustainable Processing of Biomass for Hydrocarbon Biofuels presents a comprehensive and easy to understand consolidation of existing knowledge for the production of hydrocarbon biofuels from biomass. Three major areas for the conversion of biomass to hydrocarbon biofuels are addressed: i) Chemical and thermochemical conversion processes, ii) Biological and biochemical conversion processes, and iii) Conversion processes of biomass-derived compounds. Additionally, the book includes process design, life cycle analysis of various processes, reaction engineering, catalysts, process conditions and process concepts, and is supported with detailed case studies. The economic viability of each process is specifically addressed to provide a clear guide for the economic development of future hydrocarbon biofuels. Hydrocarbon Biorefinery: Sustainable Processing of Biomass for Hydrocarbon Biofuels offers an all-in-one resource for researchers, graduate students, and industry professionals working in the area of bioenergy and will be of interest to energy engineers, chemical engineers, bioengineers, chemists, agricultural researchers, and mechanical engineers. Furthermore, this book provides structured foundational content on biorefineries for undergraduate and graduate students. Presents fundamental concepts and processes of hydrocarbon biofuel production, covering chemical, biological, and biomass-derived conversion processes Synthesizes the state-of-the-art research and commercial initiatives of this emerging concept into stand-alone chapters, serving as a structured resource for researchers and practitioners Emphasizes the process design and economic feasibility of each process using life cycle assessments to support commercial development

This book constitutes the refereed proceedings of the 4th International Workshop on Distributed Computing, IWDC 2002, held in Calcutta, India, in December 2002. The 31 revised full papers and 3 student papers presented together with 3 keynote papers were carefully reviewed and selected from more than 90 submissions. The papers are organized in topical sections on Web caching, distributed computing, wireless networks, wireless mobile systems, VLSI and parallel systems, optical networks, and distributed systems.

5G is the upcoming generation of the wireless network that will be the advanced version of 4G LTE+ providing all the features of a 4G LTE network and connectivity for IoT devices with faster speed and lower latency. The 5G network is going to be a service-oriented network, connecting billions of IoT devices and mobile phones through the wireless network, and hence, it needs a special emphasis on security. Security is the necessary enabler for the continuity of the wireless network business, and in 5G, network security for IoT devices is the most important aspect. As IoT is gaining momentum, people can remotely operate or instruct their network devices. Therefore, there is a need for robust security mechanisms to prevent unauthorized access to the devices. Evolution of Software-Defined Networking Foundations for IoT and 5G Mobile Networks is a collection of innovative research on the security challenges and prevention mechanisms in high-speed mobile networks. The book explores the threats to 5G and IoT and how to implement effective security architecture for them. While highlighting topics including artificial intelligence, mobile technology, and ubiquitous computing, this book is ideally designed for cybersecurity experts, network providers, computer scientists, communication technologies experts, academicians, students, and researchers.

Up to 70% and even more of corporate Analytics Efforts fail!!! Even after these corporations have made very large investments, in time, talent, and money, in developing what they thought were good data and analytics programs. Why? Because the executives and decision makers and the entire analytics team have not considered the most important aspect of making these analytics efforts successful. In this Book II of "It's All Analytics!" series, we describe two primary things: 1) What this "most important aspect" consists of, and 2) How to get this "most important aspect" at the center of the analytics effort and thus make your analytics program successful. This Book II in the series is divided into three main parts: Part I, Organizational Design for Success, discusses ..... The need for a complete company / organizational Alignment of the entire company and its analytics team for making its analytics successful. This means attention to the culture – the company culture culture!!! To be successful, the CEO's and Decision Makers of a company / organization must be fully cognizant of the cultural focus on 'establishing a center of excellence in analytics'. Simply, "culture – company culture" is the most important aspect of a successful analytics program. The focus must be on innovation, as this is needed by the analytics team to develop successful algorithms that will lead to greater company efficiency and increased profits. Part II, Data Design for Success, discusses ..... Data is the cornerstone of success with analytics. You can have the best analytics algorithms and models available, but if you do not have good data, efforts will at best be mediocre if not a complete failure. This Part II also goes further into data with descriptions of things like Volatile Data Memory Storage and Non-Volatile Data Memory Storage, in addition to things like data structures and data formats, plus considering things like Cluster Computing, Data Swamps, Muddy Data, Data Marts, Enterprise Data Warehouse, Data Reservoirs, and Analytic Sandboxes, and additionally Data Virtualization, Curated Data, Purchased Data, Nascent & Future Data, Supplemental Data, Meaningful Data, GIS (Geographic Information Systems) & Geo Analytics Data, Graph Databases, and Time Series Databases. Part II also considers Data Governance including Data Integrity, Data Security, Data Consistency, Data Confidence, Data Leakage, Data Distribution, and Data Literacy. Part III, Analytics Technology Design for Success, discusses .... Analytics Maturity and aspects of this maturity, like Exploratory Data Analysis, Data Preparation, Feature Engineering, Building Models, Model Evaluation, Model Selection, and Model Deployment. Part III also goes into the

nuts and bolts of modern predictive analytics, discussing such terms as AI = Artificial Intelligence, Machine Learning, Deep Learning, and the more traditional aspects of analytics that feed into modern analytics like Statistics, Forecasting, Optimization, and Simulation. Part III also goes into how to Communicate and Act upon Analytics, which includes building a successful Analytics Culture within your company / organization. All-in-all, if your company or organization needs to be successful using analytics, this book will give you the basics of what you need to know to make it happen.

Due to the growing use of web applications and communication devices, the use of data has increased throughout various industries. It is necessary to develop new techniques for managing data in order to ensure adequate usage. Deep learning, a subset of artificial intelligence and machine learning, has been recognized in various real-world applications such as computer vision, image processing, and pattern recognition. The deep learning approach has opened new opportunities that can make such real-life applications and tasks easier and more efficient. Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications is a vital reference source that trends in data analytics and potential technologies that will facilitate insight in various domains of science, industry, business, and consumer applications. It also explores the latest concepts, algorithms, and techniques of deep learning and data mining and analysis. Highlighting a range of topics such as natural language processing, predictive analytics, and deep neural networks, this multi-volume book is ideally designed for computer engineers, software developers, IT professionals, academicians, researchers, and upper-level students seeking current research on the latest trends in the field of deep learning.

Comprehensive and timely, Cloud Computing: Concepts and Technologies offers a thorough and detailed description of cloud computing concepts, architectures, and technologies, along with guidance on the best ways to understand and implement them. It covers the multi-core architectures, distributed and parallel computing models, virtualization, cloud developments, workload and Service-Level-Agreements (SLA) in cloud, workload management. Further, resource management issues in cloud with regard to resource provisioning, resource allocation, resource mapping and resource adaptation, ethical, non-ethical and security issues in cloud are followed by discussion of open challenges and future directions. This book gives students a comprehensive overview of the latest technologies and guidance on cloud computing, and is ideal for those studying the subject in specific modules or advanced courses. It is designed in twelve chapters followed by laboratory setups and experiments. Each chapter has multiple choice questions with answers, as well as review questions and critical thinking questions. The chapters are practically-focused, meaning that the information will also be relevant and useful for professionals wanting an overview of the topic.

Lists citations with abstracts for aerospace related reports obtained from world wide sources and announces documents that have recently been entered into the NASA Scientific and Technical Information Database.

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