Application Of Big Data For National Security A

As today's organizations are capturing exponentially larger amounts of data than ever, now is the time for organizations to rethink how they digest that data. Through advanced algorithms and analytics techniques, organizations can harness this data, discover hidden patterns, and use the newly acquired knowledge to achieve competitive advantages.Pre

Mobility Patterns, Big Data and Transport Analytics provides a guide to the new analytical framework and its relation to big data, focusing on capturing, predicting, visualizing and controlling mobility patterns - a key aspect of transportation modeling. The book features prominent international experts who provide overviews on new analytical frameworks, applications and concepts in mobility analysis and transportation systems. Users will find a detailed, mobility 'structural' analysis and a look at the extensive behavioral characteristics of transport, observability requirements and limitations for realistic transportation applications and transportation systems analysis that are related to complex processes and phenomena. This book bridges the gap between big data, data science, and transportation systems analysis with a study of big data's impact on mobility and an introduction to the tools necessary to apply new techniques. The book covers in detail, mobility 'structural' analysis (and its dynamics), the extensive behavioral characteristics of transport, observability requirements and limitations for realistic transportation applications, and transportation systems analysis related to complex processes and phenomena. The book bridges the gap between big data, data science, and Transportation Systems Analysis with a study of big data's impact on mobility, and an introduction to the tools necessary to apply new techniques. Guides readers through the paradigm-shifting opportunities and challenges of handling Big Data in transportation modeling and analytics Covers current analytical innovations focused on capturing, predicting, visualizing, and controlling mobility patterns, while discussing future trends Delivers an introduction to transportation-related information advances, providing a benchmark reference by world-leading experts in the field Captures and manages mobility patterns, covering multiple purposes and alternative transport modes, in a multi-disciplinary approach Companion website features videos showing the analyses performed, as well as test codes and data-sets, allowing readers to recreate the presented analyses and apply the highlighted techniques to their own data

In this book readers will find technological discussions on the existing and emerging technologies across the different stages of the big data value chain. They will learn about legal aspects of big data, the social impact, and about education needs and requirements. And they will discover the business perspective and how big data technology can be exploited to deliver value within different sectors of the economy. The book is structured in four parts: Part I "The Big Data Opportunity" explores the value potential of big data with a particular focus on the European context. It also describes the legal, business and social dimensions that need to be addressed, and briefly introduces the European Commission's BIG project. Part II "The Big Data Value Chain" details the complete big data lifecycle from a technical point of view, ranging from data acquisition, analysis, curation and storage, to data usage and exploitation. Next, Part III "Usage and Exploitation of Big Data" illustrates the value creation possibilities of big

data applications in various sectors, including industry, healthcare, finance, energy, media and public services. Finally, Part IV "A Roadmap for Big Data Research" identifies and prioritizes the cross-sectorial requirements for big data research, and outlines the most urgent and challenging technological, economic, political and societal issues for big data in Europe. This compendium summarizes more than two years of work performed by a leading group of major European research centers and industries in the context of the BIG project. It brings together research findings, forecasts and estimates related to this challenging technological context that is becoming the major axis of the new digitally transformed business environment.

"This book addresses the newest innovative and intelligent applications related to utilizing the large amounts of big data being generated that is increasingly driving decision making and changing the landscape of business intelligence, from governments to private organizations, from communities to individuals"--

Interest in big data has swelled within the scholarly community as has increased attention to the internet of things (IoT). Algorithms are constructed in order to parse and analyze all this data to facilitate the exchange of information. However, big data has suffered from problems in connectivity, scalability, and privacy since its birth. The application of deep learning algorithms has helped process those challenges and remains a major issue in today's digital world. Advanced Deep Learning Applications in Big Data Analytics is a pivotal reference source that aims to develop new architecture and applications of deep learning algorithms in big data and the IoT. Highlighting a wide range of topics such as artificial intelligence, cloud computing, and neural networks, this book is ideally designed for engineers, data analysts, data scientists, IT specialists, programmers, marketers, entrepreneurs, researchers, academicians, and students.

Application of Big Data for National Security provides users with state-of-the-art concepts, methods, and technologies for Big Data analytics in the fight against terrorism and crime, including a wide range of case studies and application scenarios. This book combines expertise from an international team of experts in law enforcement, national security, and law, as well as computer sciences, criminology, linguistics, and psychology, creating a unique cross-disciplinary collection of knowledge and insights into this increasingly global issue. The strategic frameworks and critical factors presented in Application of Big Data for National Security consider technical, legal, ethical, and societal impacts, but also practical considerations of Big Data system design and deployment, illustrating how data and security concerns intersect. In identifying current and future technical and operational challenges it supports law enforcement and government agencies in their operational, tactical and strategic decisions when employing Big Data for national security Contextualizes the Big Data concept and how it relates to national security and crime detection and prevention Presents strategic approaches for the design, adoption, and deployment of Big Data technologies in preventing terrorism and reducing crime Includes a series of case studies and scenarios to demonstrate the application of Big Data in a national security context Indicates future directions for Big Data as an enabler of advanced crime prevention and detection

This unique book demonstrates the utility of big data approaches in human geography and planning. Offering a carefully curated

selection of case studies, it reveals how researchers are accessing big data, what this data looks like and how such data can offer new and important insights and knowledge.

This book provides a review of advanced topics relating to the theory, research, analysis and implementation in the context of big data platforms and their applications, with a focus on methods, techniques, and performance evaluation. The explosive growth in the volume, speed, and variety of data being produced every day requires a continuous increase in the processing speeds of servers and of entire network infrastructures, as well as new resource management models. This poses significant challenges (and provides striking development opportunities) for data intensive and high-performance computing, i.e., how to efficiently turn extremely large datasets into valuable information and meaningful knowledge. The task of context data management is further complicated by the variety of sources such data derives from, resulting in different data formats, with varying storage, transformation, delivery, and archiving requirements. At the same time rapid responses are needed for real-time applications. With the emergence of cloud infrastructures, achieving highly scalable data management in such contexts is a critical problem, as the overall application performance is highly dependent on the properties of the data management service.

The growing presence of smart phones and smart devices has caused significant changes to wireless networks. With the ubiquity of these technologies, there is now increasingly more available data for mobile operators to utilize. Big Data Applications in the Telecommunications Industry is a comprehensive reference source for the latest scholarly material on the use of data analytics to study wireless networks and examines how these techniques can increase reliability and profitability, as well as network performance and connectivity. Featuring extensive coverage on relevant topics, such as accessibility, traffic data, and customer satisfaction, this publication is ideally designed for engineers, students, professionals, academics, and researchers seeking innovative perspectives on data science and wireless network communications.

This book addresses topics related to cloud and Big Data technologies, architecture and applications including distributed computing and data centers, cloud infrastructure and security, and end-user services. The majority of the book is devoted to the security aspects of cloud computing and Big Data. Cloud computing, which can be seen as any subscription-based or pay-per-use service that extends the Internet's existing capabilities, has gained considerable attention from both academia and the IT industry as a new infrastructure requiring smaller investments in hardware platforms, staff training, or licensing software tools. It is a new paradigm that has ushered in a revolution in both data storage and computation. In parallel to this progress, Big Data technologies, which rely heavily on cloud computing platforms for both data storage and processing, have been developed and deployed at breathtaking speed. They are among the most frequently used technologies for developing applications and services in many fields, such as the web, health, and energy. Accordingly, cloud computing and Big Data technologies are two of the most central current and future research mainstreams. They involve and impact a host of fields, including business, scientific research, and public and private administration. Gathering extended versions of the best papers presented at the Third International Conference on Cloud Computing Technologies and Applications (CloudTech'17), this book offers a valuable resource for all Information

System managers, researchers, students, developers, and policymakers involved in the technological and application aspects of cloud computing and Big Data.

Cloud Computing and Big Data technologies have become the new descriptors of the digital age. The global amount of digital data has increased more than nine times in volume in just five years and by 2030 its volume may reach a staggering 65 trillion gigabytes. This explosion of data has led to opportunities and transformation in various areas such as healthcare, enterprises, industrial manufacturing and transportation. New Cloud Computing and Big Data tools endow researchers and analysts with novel techniques and opportunities to collect, manage and analyze the vast quantities of data. In Cloud and Big Data Analytics, Swarm Intelligence and Deep Learning are two developing type of Machine Learning techniques that show enormous potential for solving complex business problems. Deep Learning enables computers to analyze large quantities of unstructured and binary data and to deduce relationships without requiring specific models or programming instructions. This book introduces the state-of-the-art trends and advances in the use of Machine Learning in Cloud and Big Data Analytics. The book will serve as a reference for data scientists, systems architects, developers, new researchers and graduate level students in Computer and Data Science. The book will describe the concepts necessary to understand current Machine Learning issues, challenges and possible solutions as well as upcoming trends in Big Data Analytics.

Webber, Henry Y. Zheng, Ying Zhou

Build next-generation Artificial Intelligence systems with Java Key Features Implement AI techniques to build smart applications using Deeplearning4j Perform big data analytics to derive quality insights using Spark MLlib Create self-learning systems using neural networks, NLP, and reinforcement learning Book Description In this age of big data, companies have larger amount of consumer data than ever before, far more than what the current technologies can ever hope to keep up with. However, Artificial Intelligence closes the gap by moving past human limitations in order to analyze data. With the help of Artificial Intelligence for big data, you will learn to use Machine Learning algorithms such as k-means, SVM, RBF, and regression to perform advanced data analysis. You will understand the current status of Machine and Deep Learning techniques to work on Genetic and Neuro-Fuzzy algorithms. In addition, you will explore how to develop Artificial Intelligence algorithms to learn from data, why they are necessary, and how they can help solve real-world problems. By the end of this book, you'll have learned how to implement various Artificial Intelligence algorithms for your big data systems and integrate them into your product offerings such as reinforcement learning, natural language processing, image recognition, genetic algorithms, and fuzzy logic systems. What you will learn Manage Artificial Intelligence techniques for big data with Java Build smart systems to analyze data for enhanced customer experience Learn to use Artificial Intelligence frameworks for big data Understand complex problems with algorithms and Neuro-Fuzzy systems Design stratagems to leverage data using Machine Learning process Apply Deep Learning techniques to prepare data for modeling Construct models that learn from data using open source tools Analyze big data problems using scalable Machine Learning algorithms Who this book is for This book is for you if you are a data scientist, big data professional, or novice who has basic

knowledge of big data and wish to get proficiency in Artificial Intelligence techniques for big data. Some competence in mathematics is an added advantage in the field of elementary linear algebra and calculus.

Operations management is a tool by which companies can effectively meet customers' needs using the least amount of resources necessary. With the emergence of sensors and smart metering, big data is becoming an intrinsic part of modern operations management. Applied Big Data Analytics in Operations Management enumerates the challenges and creative solutions and tools to apply when using big data in operations management. Outlining revolutionary concepts and applications that help businesses predict customer behavior along with applications of artificial neural networks, predictive analytics, and opinion mining on business management, this comprehensive publication is ideal for IT professionals, software engineers, business professionals, managers, and students of management.

Today, cloud computing, big data, and the internet of things (IoT) are becoming indubitable parts of modern information and communication systems. They cover not only information and communication technology but also all types of systems in society including within the realms of business, finance, industry, manufacturing, and management. Therefore, it is critical to remain up-to-date on the latest advancements and applications, as well as current issues and challenges. The Handbook of Research on Cloud Computing and Big Data Applications in IoT is a pivotal reference source that provides relevant theoretical frameworks and the latest empirical research findings on principles, challenges, and applications of cloud computing, big data, and IoT. While highlighting topics such as fog computing, language interaction, and scheduling algorithms, this publication is ideally designed for software developers, computer engineers, scientists, professionals, academicians, researchers, and students.

Applications of Big Data and Business Analytics in Management uses advanced analytic tools to explore the solutions to problems in society, environment and industry. The chapters within bring together researchers, engineers and practitioners, encompassing a wide and diverse set of topics in almost every field.

This book presents different use cases in big data applications and related practical experiences. Many businesses today are increasingly interested in utilizing big data technologies for supporting their business intelligence so that it is becoming more and more important to understand the various practical issues from different practical use cases. This book provides clear proof that big data technologies are playing an ever increasing important and critical role in a new cross-discipline research between computer science and business.

The book is devoted to the analysis of big data in order to extract from these data hidden patterns necessary for making decisions about the rational behavior of complex systems with the different nature that generate this data. To solve these problems, a group of new methods and tools is used, based on the self-organization of computational processes, the use of crisp and fuzzy cluster analysis methods, hybrid neural-fuzzy networks, and others. The book solves various practical problems. In particular, for the tasks of 3D image recognition and automatic speech recognition large-scale neural

networks with applications for Deep Learning systems were used. Application of hybrid neuro-fuzzy networks for analyzing stock markets was presented. The analysis of big historical, economic and physical data revealed the hidden Fibonacci pattern about the course of systemic world conflicts and their connection with the Kondratieff big economic cycles and the Schwabe–Wolf solar activity cycles. The book is useful for system analysts and practitioners working with complex systems in various spheres of human activity.

The first book to present the common mathematical foundations of big data analysis across a range of applications and technologies. Today, the volume, velocity, and variety of data are increasing rapidly across a range of fields, including Internet search, healthcare, finance, social media, wireless devices, and cybersecurity. Indeed, these data are growing at a rate beyond our capacity to analyze them. The tools—including spreadsheets, databases, matrices, and graphs—developed to address this challenge all reflect the need to store and operate on data as whole sets rather than as individual elements. This book presents the common mathematical foundations of these data sets that apply across many applications and technologies. Associative arrays unify and simplify data, allowing readers to look past the differences among the various tools and leverage their mathematical similarities in order to solve the hardest big data challenges. The book first introduces the concept of the associative array in practical terms, presents the associative array manipulation system D4M (Dynamic Distributed Dimensional Data Model), and describes the application of associative arrays to graph analysis and machine learning. It provides a mathematically rigorous definition of associative arrays and describes the properties of associative arrays that arise from this definition. Finally, the book shows how concepts of linearity can be extended to encompass associative arrays. Mathematics of Big Data can be used as a textbook or reference by engineers, scientists, mathematicians, computer scientists, and software engineers who analyze big data.

This open access book is part of the LAMBDA Project (Learning, Applying, Multiplying Big Data Analytics), funded by the European Union, GA No. 809965. Data Analytics involves applying algorithmic processes to derive insights. Nowadays it is used in many industries to allow organizations and companies to make better decisions as well as to verify or disprove existing theories or models. The term data analytics is often used interchangeably with intelligence, statistics, reasoning, data mining, knowledge discovery, and others. The goal of this book is to introduce some of the definitions, methods, tools, frameworks, and solutions for big data processing, starting from the process of information extraction and knowledge representation, via knowledge processing and analytics to visualization, sense-making, and practical applications. Each chapter in this book addresses some pertinent aspect of the data processing chain, with a specific focus on understanding Enterprise Knowledge Graphs, Semantic Big Data Architectures, and Smart Data Analytics

solutions. This book is addressed to graduate students from technical disciplines, to professional audiences following continuous education short courses, and to researchers from diverse areas following self-study courses. Basic skills in computer science, mathematics, and statistics are required.

The objective of this book is to introduce the basic concepts of big data computing and then to describe the total solution of big data problems using HPCC, an open-source computing platform. The book comprises 15 chapters broken into three parts. The first part, Big Data Technologies, includes introductions to big data concepts and techniques; big data analytics; and visualization and learning techniques. The second part, LexisNexis Risk Solution to Big Data, focuses on specific technologies and techniques developed at LexisNexis to solve critical problems that use big data analytics. It covers the open source High Performance Computing Cluster (HPCC Systems®) platform and its architecture, as well as parallel data languages ECL and KEL, developed to effectively solve big data problems. The third part, Big Data Applications, describes various data intensive applications solved on HPCC Systems. It includes applications such as cyber security, social network analytics including fraud, Ebola spread modeling using big data analytics, unsupervised learning, and image classification. The book is intended for a wide variety of people including researchers, scientists, programmers, engineers, designers, developers, educators, and students. This book can also be beneficial for business managers, entrepreneurs, and investors.

This book addresses the impacts of various types of services such as infrastructure, platforms, software, and business processes that cloud computing and Big Data have introduced into business. Featuring chapters which discuss effective and efficient approaches in dealing with the inherent complexity and increasing demands in data science, a variety of application domains are covered. Various case studies by data management and analysis experts are presented in these chapters. Covered applications include banking, social networks, bioinformatics, healthcare, transportation and criminology. Highlighting the Importance of Big Data Management and Analysis for Various Applications will provide the reader with an understanding of how data management and analysis are adapted to these applications. This book will appeal to researchers and professionals in the field.

Process Safety and Big Data discusses the principles of process safety and advanced information technologies. It explains how these principles are applied to the process industry and provides examples of applications in process safety control and decision support systems. This book helps to address problems that researchers face in industry that are the result of increased process complexity and that have an impact on safety issues. It shows ways to tackle these safety issues by implementing modern information technologies, such as big data analysis and artificial intelligence. It provides an integrated approach to modern information technologies used in control and management of process safety in

industry. The book also considers indicators and criteria in effective safety decisions, and addresses the issue of how big data would provide support for improved, autonomous, data-driven decisions. Paves the way for the digital transformation of safety science and safety management Takes a system approach to advanced information technologies used in process safety Applies big data technologies to process safety Includes multiple pertinent case studies

Get the expert perspective and practical advice on big data The Big Data-Driven Business: How to Use Big Data to Win Customers, Beat Competitors, and Boost Profits makes the case that big data is for real, and more than just big hype. The book uses real-life examples—from Nate Silver to Copernicus, and Apple to Blackberry—to demonstrate how the winners of the future will use big data to seek the truth. Written by a marketing journalist and the CEO of a multi-million-dollar B2B marketing platform that reaches more than 90% of the U.S. business population, this book is a comprehensive and accessible guide on how to win customers, beat competitors, and boost the bottom line with big data. The marketplace has entered an era where the customer holds all the cards. With unprecedented choice in both the consumer world and the B2B world, it's imperative that businesses gain a greater understanding of their customers and prospects. Big data is the key to this insight, because it provides a comprehensive view of a company's customers—who they are, and who they may be tomorrow. The Big Data-Driven Business is a complete guide to the future of business as seen through the lens of big data, with expert advice on real-world applications. Learn what big data is, and how it will transform the enterprise Explore why major corporations are betting their companies on marketing technology Read case studies of big data winners and losers Discover how to change privacy and security, and remodel marketing Better information allows for better decisions, better targeting, and better reach. Big data has become an indispensable tool for the most effective marketers in the business, and it's becoming less of a competitive advantage and more like an industry standard. Remaining relevant as the marketplace evolves requires a full understanding and application of big data, and The Big Data-Driven Business provides the practical guidance businesses need.

The best-selling author of Big Data is back, this time with a unique and in-depth insight into how specific companies use big data. Big data is on the tip of everyone's tongue. Everyone understands its power and importance, but many fail to grasp the actionable steps and resources required to utilise it effectively. This book fills the knowledge gap by showing how major companies are using big data every day, from an up-close, on-the-ground perspective. From technology, media and retail, to sport teams, government agencies and financial institutions, learn the actual strategies and processes being used to learn about customers, improve manufacturing, spur innovation, improve safety and so much more. Organised for easy dip-in navigation, each chapter follows the same structure to give you the information you need quickly. For each company profiled, learn what data was used, what problem it solved and the processes put it place to make it practical, as well as the technical details, challenges and lessons learned from

each unique scenario. Learn how predictive analytics helps Amazon, Target, John Deere and Apple understand their customers Discover how big data is behind the success of Walmart, LinkedIn, Microsoft and more Learn how big data is changing medicine, law enforcement, hospitality, fashion, science and banking Develop your own big data strategy by accessing additional reading materials at the end of each chapter

Today, libraries must provide various web-based services, social media, and internet to patrons in order to adequately support their information needs. In addition to these services, the maintenance of online literature, databases, data sets, and archives cause librarians to have to handle huge amounts of data each day. Big data can support with quality improvement and problem solving to improve library services and can help librarians to provide up-to-date and innovative real-time services to library users. Big Data Applications for Improving Library Services is an essential scholarly publication that examines the implications and applications of big data analytics on services provided by libraries. Highlighting a wide range of topics such as data analytics, mobile technologies, and web-based services, this book is ideal for librarians, knowledge managers, data scientists, data analysts, cataloguers, academicians, IT professionals, researchers, and students.

This book covers a wide range of topics on the role of Artificial Intelligence, Machine Learning, and Big Data for healthcare applications and deals with the ethical issues and concerns associated with it. This book explores the applications in different areas of healthcare and highlights the current research. "Big Data and Artificial Intelligence for Healthcare Applications" covers healthcare big data analytics, mobile health and personalized medicine, clinical trial data management and presents how Artificial Intelligence can be used for early disease diagnosis prediction and prognosis. It also offers some case studies that describes the application of Artificial Intelligence and Machine Learning in healthcare. Researchers, healthcare professionals, data scientists, systems engineers, students, programmers, clinicians, and policymakers will find this book of interest.

This timely text/reference reviews the state of the art of big data analytics, with a particular focus on practical applications. An authoritative selection of leading international researchers present detailed analyses of existing trends for storing and analyzing big data, together with valuable insights into the challenges inherent in current approaches and systems. This is further supported by real-world examples drawn from a broad range of application areas, including healthcare, education, and disaster management. The text also covers, typically from an application-oriented perspective, advances in data science in such areas as big data collection, searching, analysis, and knowledge discovery. Topics and features: Discusses a model for data traffic aggregation in 5G cellular networks, and a novel scheme for resource allocation in 5G networks with network slicing Explores methods that use big data in the assessment of flood risks, and apply neural networks techniques to monitor the safety of nuclear power plants Describes a system which leverages big data analytics and the Internet of Things in the application of drones to aid victims in disaster scenarios Proposes a novel deep learning-based health data analytics application for sleep apnea detection, and a novel pathway for diagnostic models of headache disorders Reviews techniques for educational data mining and learning analytics, and introduces a scalable MapReduce graph partitioning approach for high degree vertices Presents a multivariate and dynamic data

representation model for the visualization of healthcare data, and big data analytics methods for software reliability assessment This practically-focused volume is an invaluable resource for all researchers, academics, data scientists and business professionals involved in the planning, designing, and implementation of big data analytics projects. Dr. Mohammed M. Alani is an Associate Professor in Computer Engineering and currently is the Provost at Al Khawarizmi International College, Abu Dhabi, UAE. Dr. Hissam Tawfik is a Professor of Computer Science in the School of Computing, Creative Technologies & Engineering at Leeds Beckett University, UK. Dr. Mohammed Saeed is a Professor in Computing and currently is the Vice President for Academic Affairs and Research at the University of Modern Sciences, Dubai, UAE. Dr. Obinna Anya is a Research Staff Member at IBM Research – Almaden, San Jose, CA, USA.

As technology evolves and electronic data becomes more complex, digital medical record management and analysis becomes a challenge. In order to discover patterns and make relevant predictions based on large data sets, researchers and medical professionals must find new methods to analyze and extract relevant health information. Big Data Analytics in Bioinformatics and Healthcare merges the fields of biology, technology, and medicine in order to present a comprehensive study on the emerging information processing applications necessary in the field of electronic medical record management. Complete with interdisciplinary research resources, this publication is an essential reference source for researchers, practitioners, and students interested in the fields of biological computation, database management, and health information technology, with a special focus on the methodologies and tools to manage massive and complex electronic information.

Applications of Big Data AnalyticsTrends, Issues, and ChallengesSpringer

Big Data Application in Power Systems brings together experts from academia, industry and regulatory agencies who share their understanding and discuss the big data analytics applications for power systems diagnostics, operation and control. Recent developments in monitoring systems and sensor networks dramatically increase the variety, volume and velocity of measurement data in electricity transmission and distribution level. The book focuses on rapidly modernizing monitoring systems, measurement data availability, big data handling and machine learning approaches to process high dimensional, heterogeneous and spatiotemporal data. The book chapters discuss challenges, opportunities, success stories and pathways for utilizing big data value in smart grids. Provides expert analysis of the latest developments by global authorities Contains detailed references for further reading and extended research Provides additional cross-disciplinary lessons learned from broad disciplines such as statistics, computer science and bioinformatics Focuses on rapidly modernizing monitoring systems, measurement data availability, big data handling and machine learning approaches to process high dimensional, heterogeneous and spatiotemporal data

Building Big Data Applications helps data managers and their organizations make the most of unstructured data with an existing data warehouse. It provides readers with what they need to know to make sense of how Big Data fits into the world of Data Warehousing. Readers will learn about infrastructure options and integration and come away with a solid understanding on how to

leverage various architectures for integration. The book includes a wide range of use cases that will help data managers visualize reference architectures in the context of specific industries (healthcare, big oil, transportation, software, etc.). Explores various ways to leverage Big Data by effectively integrating it into the data warehouse Includes real-world case studies which clearly demonstrate Big Data technologies Provides insights on how to optimize current data warehouse infrastructure and integrate newer infrastructure matching data processing workloads and requirements

Find the right big data solution for your business ororganization Big data management is one of the major challenges facingbusiness, industry, and not-for-profit organizations. Data setssuch as customer transactions for a mega-retailer, weather patternsmonitored by meteorologists, or social network activity can quicklyoutpace the capacity of traditional data management tools. If youneed to develop or manage big data solutions, you'll appreciate howthese four experts define, explain, and guide you through this newand often confusing concept. You'll learn what it is, why itmatters, and how to choose and implement solutions that work. Effectively managing big data is an issue of growing importanceto businesses, not-for-profit organizations, government, and ITprofessionals Authors are experts in information management, big data, and avariety of solutions Explains big data in detail and discusses how to select andimplement a solution, security concerns to consider, data storageand presentation issues, analytics, and much more Provides essential information in a no-nonsense,easy-to-understand style that is empowering Big Data For Dummies cuts through the confusion and helpsyou take charge of big data solutions for your organization.

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. Big Data: Concepts, Methodologies, Tools, and Applications is a multi-volume compendium of research-based perspectives and solutions within the realm of large-scale and complex data sets. Taking a multidisciplinary approach, this publication presents exhaustive coverage of crucial topics in the field of big data including diverse applications, storage solutions, analysis techniques, and methods for searching and transferring large data sets, in addition to security issues. Emphasizing essential research in the field of data science, this publication is an ideal reference source for data analysts, IT professionals, researchers, and academics.

This book presents the current trends, technologies, and challenges in Big Data in the diversified field of engineering and sciences. It covers the applications of Big Data ranging from conventional fields of mechanical engineering, civil engineering to electronics, electrical, and computer science to areas in pharmaceutical and biological sciences. This

book consists of contributions from various authors from all sectors of academia and industries, demonstrating the imperative application of Big Data for the decision-making process in sectors where the volume, variety, and velocity of information keep increasing. The book is a useful reference for graduate students, researchers and scientists interested in exploring the potential of Big Data in the application of engineering areas.

In a world of soaring digitization, social media, financial transactions, and production and logistics processes constantly produce massive data. Employing analytical tools to extract insights and foresights from data improves the quality, speed, and reliability of solutions to highly intertwined issues faced in supply chain operations. From procurement in Industry 4.0 to sustainable consumption behavior to curriculum development for data scientists, this book offers a wide array of techniques and theories of Big Data Analytics applied to Supply Chain Management. It offers a comprehensive overview and forms a new synthesis by bringing together seemingly divergent fields of research. Intended for Engineering and Business students, scholars, and professionals, this book is a collection of state-of-the-art research and best practices to spur discussion about and extend the cumulant knowledge of emerging supply chain problems.

As technology advances, high volumes of valuable data are generated day by day in modern organizations. The management of such huge volumes of data has become a priority in these organizations, requiring new techniques for data management and data analysis in Big Data environments. These environments encompass many different fields including medicine, education data, and recommender systems. The aim of this book is to provide the reader with a variety of fields and systems where the analysis and management of Big Data are essential. This book describes the importance of the Big Data era and how existing information systems are required to be adapted to face up the problems derived from the management of massive datasets.

Promise, Application and Pitfalls

Computational Intelligence for Multimedia Big Data on the Cloud with Engineering Applications covers timely topics, including the neural network (NN), particle swarm optimization (PSO), evolutionary algorithm (GA), fuzzy sets (FS) and rough sets (RS), etc. Furthermore, the book highlights recent research on representative techniques to elaborate how a data-centric system formed a powerful platform for the processing of cloud hosted multimedia big data and how it could be analyzed, processed and characterized by CI. The book also provides a view on how techniques in CI can offer solutions in modeling, relationship pattern recognition, clustering and other problems in bioengineering. It is written for domain experts and developers who want to understand and explore the application of computational intelligence aspects (opportunities and challenges) for design and development of a data-centric system in the context of multimedia cloud, big data era and its related applications, such as smarter healthcare, homeland security, traffic control trading

analysis and telecom, etc. Researchers and PhD students exploring the significance of data centric systems in the next paradigm of computing will find this book extremely useful. Presents a brief overview of computational intelligence paradigms and its significant role in application domains Illustrates the state-of-the-art and recent developments in the new theories and applications of CI approaches Familiarizes the reader with computational intelligence concepts and technologies that are successfully used in the implementation of cloud-centric multimedia services in massive data processing Provides new advances in the fields of CI for bio-engineering application

Due to the scale and complexity of data sets currently being collected in areas such as health, transportation, environmental science, engineering, information technology, business and finance, modern quantitative analysts are seeking improved and appropriate computational and statistical methods to explore, model and draw inferences from big data. This book aims to introduce suitable approaches for such endeavours, providing applications and case studies for the purpose of demonstration. Computational and Statistical Methods for Analysing Big Data with Applications starts with an overview of the era of big data. It then goes onto explain the computational and statistical methods which have been commonly applied in the big data revolution. For each of these methods, an example is provided as a guide to its application. Five case studies are presented next, focusing on computer vision with massive training data, spatial data analysis, advanced experimental design methods for big data, big data in clinical medicine, and analysing data collected from mobile devices, respectively. The book concludes with some final thoughts and suggested areas for future research in big data. Advanced computational and statistical methodologies for analysing big data are developed Experimental design methodologies are described and implemented to make the analysis of big data more computationally tractable Case studies are discussed to demonstrate the implementation of the developed methods Five high-impact areas of application are studied: computer vision, geosciences, commerce, healthcare and transportation Computing code/programs are provided where appropriate