Big Data and Analytics Applications in Government

The main purpose of this book is to investigate, explore and describe approaches and methods to facilitate data understanding through analytics solutions based on its principles, concepts and applications. But analyzing data is also about involving the use of software. For this, and in order to cover some aspect of data analytics, this book uses software (Excel, SPSS, Python, etc) which can help readers to better understand the analytics process in simple terms and supporting useful methods in its application.

Handbook of Big Data Analytics

This book is intended to present the state of the art in research on machine learning and big data analytics. The accepted chapters covered many themes including artificial intelligence and data mining applications, machine learning and applications, deep learning technology for big data analytics, and modeling, simulation, and security with big data. It is a valuable resource for researchers in the area of big data analytics and its applications.

Big Data Analytics

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

Big Data Application in Power Systems

The guide to targeting and leveraging business opportunities using big data & analytics By leveraging big data & analytics, businesses create the potential to better understand, manage, and strategically exploiting the complex dynamics of customer behavior. Analytics in a Big Data World reveals how to tap into the powerful tool of data analytics to create a strategic advantage and identify new business opportunities. Designed to be an accessible resource, this essential book does not include exhaustive coverage of all analytical techniques, instead focusing on analytics techniques that really provide added value in business environments. The book draws on author Bart Baesens' expertise on the topics of big data, analytics and its applications in e.g. credit risk, marketing, and fraud to provide a clear roadmap for organizations that want to use data analytics to their advantage, but need a good starting point. Baesens has conducted extensive research on big data, analytics, customer relationship management, web analytics, fraud
Big Data Analytics

Within this context, big data analytics (BDA) can be an important tool given that many analytic techniques within the big data world have been created specifically to deal with complexity and rapidly changing conditions. The important task for public sector organizations is to liberate analytics from narrow scientific silos and expand it across internally to reap maximum benefit across their portfolios of programs. This book highlights contextual factors important to better situating the use of BDA within government organizations and demonstrates the wide range of applications of different BDA techniques. It emphasizes the importance of leadership and organizational practices that can improve performance. It explains that BDA initiatives should not be bolted on but should be integrated into the organization’s performance management processes. Equally important, the book includes chapters that demonstrate the diversity of factors that need to be managed to launch and sustain BDA initiatives in public sector organizations.

Applied Big Data Analytics in Operations Management

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. Contributions from key scholars working in the field bring together an international series of case studies on demography and migration, retail and consumer analytics, health care planning, urban planning and transport studies. Chapters also discuss how data sets leveraged from commercial and public agency sources can greatly improve the data traditionally worked with in academic geography, regional science and planning. While addressing the challenges and limitations of big data, the book also demonstrates the usefulness of data sets held by commercial agencies and explores data linkage between big data and traditional public domain data sources. Focusing on the applications of big data to investigate issues in a spatial context, this book will be an essential guide for scholars and students of planning, mobility and human geography, particularly those who specialize in economic and transport geography. Its use of key case studies to demonstrate the applications of big data analytics in planning will also be useful for planners in these fields.

Big Data Analytics in Supply Chain Management

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.

Big Data Analytics and Intelligence

Big data technologies are used to achieve any type of analytics in a fast and predictable way, thus enabling better human and machine level decision making. Principles of distributed computing are the keys to big data technologies and analytics. The mechanisms related to data storage, data access, data transfer, visualization and predictive modeling using distributed processing in multiple low cost machines are the key considerations that make big data analytics possible within stipulated cost and time practical for consumption by human and machines. However, the current literature available in big data analytics needs a holistic perspective to highlight the relation between big data analytics and distributed processing for ease of understanding and practitioner use. This book fills the literature gap by addressing key aspects of distributed processing in big data analytics. The chapters tackle the essential concepts and patterns of...
distributed computing widely used in big data analytics. This book discusses also covers the main
technologies which support distributed processing. Finally, this book provides insight into applications of
big data analytics, highlighting how principles of distributed computing are used in those situations.
Practitioners and researchers alike will find this book a valuable tool for their work, helping them to select
the appropriate technologies, while understanding the inherent strengths and drawbacks of those
technologies.

Distributed Computing in Big Data Analytics

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.

Big Data Analytics for Sustainable Computing

Many aspects of modern life have become personalized, yet healthcare practices have been lagging behind
in this trend. It is now becoming more common to use big data analysis to improve current healthcare and
medicinal systems, and offer better health services to all citizens. Applying Big Data Analytics in
Bioinformatics and Medicine is a comprehensive reference source that overviews the current state of
medical treatments and systems and offers emerging solutions for a more personalized approach to the
healthcare field. Featuring coverage on relevant topics that include smart data, proteomics, medical data
storage, and drug design, this publication is an ideal resource for medical professionals, healthcare
practitioners, academicians, and researchers interested in the latest trends and techniques in personalized
medicine.

Process Safety and Big Data

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

Analytics in a Big Data World
While the term Big Data is open to varying interpretation, it is quite clear that the Volume, Velocity, and Variety (3Vs) of data have impacted every aspect of computational science and its applications. The volume of data is increasing at a phenomenal rate and a majority of it is unstructured. With big data, the volume is so large that processing it using traditional database and software techniques is difficult, if not impossible. The drivers are the ubiquitous sensors, devices, social networks and the all-pervasive web. Scientists are increasingly looking to derive insights from the massive quantity of data to create new knowledge. In common usage, Big Data has come to refer simply to the use of predictive analytics or other certain advanced methods to extract value from data, without any required magnitude thereon. Challenges include analysis, capture, curation, search, sharing, storage, transfer, visualization, and information privacy. While there are challenges, there are huge opportunities emerging in the fields of Machine Learning, Data Mining, Statistics, Human-Computer Interfaces and Distributed Systems to address ways to analyze and reason with this data. The edited volume focuses on the challenges and opportunities posed by "Big Data" in a variety of domains and how statistical techniques and innovative algorithms can help glean insights and accelerate discovery. Big data has the potential to help companies improve operations and make faster, more intelligent decisions. Review of big data research challenges from diverse areas of scientific endeavor Rich perspective on a range of data science issues from leading researchers Insight into the mathematical and statistical theory underlying the computational methods used to address big data analytics problems in a variety of domains

Applications of Big Data and Business Analytics in Management

Big Data Analytics with Spark is a step-by-step guide for learning Spark, which is an open-source fast and general-purpose cluster computing framework for large-scale data analysis. You will learn how to use Spark for different types of big data analytics projects, including batch, interactive, graph, and stream data analysis as well as machine learning. In addition, this book will help you become a much sought-after Spark expert. Spark is one of the hottest Big Data technologies. The amount of data generated today by devices, applications and users is exploding. Therefore, there is a critical need for tools that can analyze large-scale data and unlock value from it. Spark is a powerful technology that meets that need. You can, for example, use Spark to perform low latency computations through the use of efficient caching and iterative algorithms; leverage the features of its shell for easy and interactive Data analysis; employ its fast batch processing and low latency features to process your real time data streams and so on. As a result, adoption of Spark is rapidly growing and is replacing Hadoop MapReduce as the technology of choice for big data analytics. This book provides an introduction to Spark and related big-data technologies. It covers Spark core and its add-on libraries, including Spark SQL, Spark Streaming, GraphX, and MLLib. Big Data Analytics with Spark is therefore written for busy professionals who prefer learning a new technology from a consolidated source instead of spending countless hours on the Internet trying to pick bits and pieces from different sources. The book also provides a chapter on Scala, the hottest functional programming language, and the program that underlies Spark. You’ll learn the basics of functional programming in Scala, so that you can write Spark applications in it. What’s more, Big Data Analytics with Spark provides an introduction to other big data technologies that are commonly used along with Spark, like Hive, Avro, Kafka and so on. So the book is self-sufficient; all the technologies that you need to know to use Spark are covered. The only thing that you are expected to know is programming in any language. There is a critical shortage of people with big data expertise, so companies are willing to pay top dollar for people with skills in areas like Spark and Scala. So reading this book and absorbing its principles will provide a boost—possibly a big boost—to your career.

Applying Big Data Analytics in Bioinformatics and Medicine

Knowledge Modelling and Big Data Analytics in Healthcare: Advances and Applications focuses on automated analytical techniques for healthcare applications used to extract knowledge from a vast amount of data. It brings together a variety of different aspects of the healthcare system and aids in the decision-making processes for healthcare professionals. The editors connect four contemporary areas of research rarely brought together in one book: artificial intelligence, big data analytics, knowledge modelling, and healthcare. They present state-of-the-art research from the healthcare sector, including research on medical imaging, healthcare analysis, and the applications of artificial intelligence in drug discovery. This book is intended for data scientists, academicians, and industry professionals in the healthcare sector.

Big Data Technologies and Applications

This book provides a comprehensive survey of techniques, technologies and applications of Big Data and its analysis. The Big Data phenomenon is increasingly impacting all sectors of business and industry, producing an emerging new information ecosystem. On the applications front, the book offers detailed descriptions of various application areas for Big Data Analytics in the important domains of Social Semantic Web Mining, Banking and Financial Services, Capital Markets, Insurance, Advertisement, Recommendation Systems, Bio-Informatics, the IoT and Fog Computing, before delving into issues of security and privacy. With regard to machine learning techniques, the book presents all the standard algorithms for learning – including supervised, semi-supervised and unsupervised techniques such as
clustering and reinforcement learning techniques to perform collective Deep Learning. Multi-layered and nonlinear learning for Big Data are also covered. In turn, the book highlights real-life case studies on successful implementations of Big Data Analytics at large IT companies such as Google, Facebook, LinkedIn and Microsoft. Multi-sectoral case studies on domain-based companies such as Deutsche Bank, the power provider Opower, Delta Airlines and a Chinese City Transportation application represent a valuable addition. Given its comprehensive coverage of Big Data Analytics, the book offers a unique resource for undergraduate and graduate students, researchers, educators and IT professionals alike.

**Cloud Computing for Geospatial Big Data Analytics**

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.

**Big Data Applications in Geography and Planning**

Applications of Big Data in Healthcare: Theory and Practice begins with the basics of Big Data analysis and introduces the tools, processes and procedures associated with Big Data analytics. The book unites healthcare with Big Data analysis and uses the advantages of the latter to solve the problems faced by the former. The authors present the challenges faced by the healthcare industry, including capturing, storing, searching, sharing and analyzing data. This book illustrates the challenges in the applications of Big Data and suggests ways to overcome them, with a primary emphasis on data repositories, challenges, and concepts for data scientists, engineers and clinicians. The applications of Big Data have grown tremendously within the past few years and its growth can not only be attributed to its competence to handle large data streams but also to its abilities to find insights from complex, noisy, heterogeneous, longitudinal and voluminous data. The main objectives of Big Data in the healthcare sector is to come up with ways to provide personalized healthcare to patients by taking into account the enormous amounts of already existing data. Provides case studies that illustrate the business processes underlying the use of big data and deep learning health analytics to improve health care delivery. Supplies readers with a foundation for further specialized study in clinical analysis and data management. Includes links to websites, videos, articles and other online content to expand and support the primary learning objectives for each major section of the book.

**Big Data in Practice**

This book introduces the latest research findings in cloud, edge, fog, and mist computing and their applications in various fields using geospatial data. It solves a number of problems of cloud computing and big data, such as scheduling, security issues using different techniques, which researchers from industry and academia have been attempting to solve in virtual environments. Some of these problems are of an intractable nature and so efficient technologies like fog, edge and mist computing play an important role in addressing these issues. By exploring emerging advances in cloud computing and big data analytics and their engineering applications, the book enables researchers to understand the mechanisms needed to implement cloud, edge, fog, and mist computing in their own endeavours, and motivates them to examine their own research findings and developments.

**Applications of Machine Learning in Big-Data Analytics and Cloud Computing**

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
Applications of Big Data for National Security

This book has a collection of articles written by Big Data experts to describe some of the cutting-edge methods and applications from their respective areas of interest, and provides the reader with a detailed overview of the field of Big Data Analytics as it is practiced today. The chapters cover technical aspects of key areas that generate and use Big Data such as management and finance; medicine and healthcare; genome, cytome and microbiome; graphs and networks; Internet of Things; Big Data standards; benchmarking of systems; and others. In addition to different applications, key algorithmic approaches such as graph partitioning, clustering and finite mixture modelling of high-dimensional data are also covered. The varied collection of themes in this volume introduces the reader to the richness of the emerging field of Big Data Analytics.

Applications of Big Data in Large- and Small-Scale Systems

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.

Data Science and Big Data Analytics

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.

Advanced Deep Learning Applications in Big Data Analytics

A handy reference guide for data analysts and data scientists to help to obtain value from big data analytics using Spark on Hadoop clusters About This Book This book is based on the latest 2.0 version of Apache Spark and 2.7 version of Hadoop integrated with most commonly used tools. Learn all Spark stack components including latest topics such as DataFrames, DataSets, GraphFrames, Structured Streaming, DataFrame based ML Pipelines and SparkR. Integrations with frameworks such as HDFS, YARN and tools such as Jupyter, Zeppelin, NiFi, Mahout, HBase Spark Connector, GraphFrames, H2O and Hivemall. Who This Book Is For Though this book is primarily aimed at data analysts and data scientists, it will also help architects, programmers, and practitioners. Knowledge of either Spark or Hadoop would be beneficial. It is assumed that you have basic programming background in Scala, Python, SQL, or R programming with basic Linux experience. Working experience within big data environments is not mandatory. What You Will Learn Find out and implement the tools and techniques of big data analytics using Spark on Hadoop clusters with wide variety of tools used with Spark and Hadoop Understand all the Hadoop and Spark ecosystem components Get to know all the Spark components: Spark Core, Spark SQL, DataFrames, DataSets, Conventional and Structured Streaming, MLLib, ML Pipelines and Graphx See batch and real-time data analytics using Spark Core, Spark SQL, and Conventional and Structured Streaming Get to grips with data science and machine learning using MLLib, ML Pipelines, H2O, Hivemall, Graphx, SparkR and Hivemall. In Detail Big Data Analytics book aims at providing the fundamentals of Apache Spark and Hadoop. All Spark components – Spark Core, Spark SQL, DataFrames, Data sets, Conventional Streaming, Structured Streaming, MLLib, Graphx and Hadoop core components – HDFS, MapReduce and Yarn are explored in greater depth with implementation examples on Spark + Hadoop clusters. It is moving away from MapReduce to Spark. So, advantages of Spark over MapReduce are explained at great depth to reap benefits of in-memory speeds. DataFrames API, Data Sources API and new Data set API are explained for building Big Data analytical applications. Real-time data analytics using Spark Streaming with Apache Kafka and HBase is covered to help building streaming applications. New Structured streaming concept is explained with an IoT (Internet of Things) use case. Machine learning techniques are covered using MLLib, ML Pipelines and SparkR and Graph Analytics are covered with GraphX and GraphFrames components of Spark. Readers will also get an opportunity to get started with web based notebooks such as Jupyter, Apache Zeppelin and data flow tool Apache NiFi to analyze and visualize data. Style and approach This step-by-step pragmatic guide will make life easy no matter what your level of experience. You will deep dive into Apache Spark on Hadoop clusters through ample exciting real-life examples. Practical tutorial explains data science in simple terms to help programmers and data analysts get started.

Advanced Deep Learning Applications in Big Data Analytics

A handy reference guide for data analysts and data scientists to help to obtain value from big data analytics using Spark on Hadoop clusters. This book is based on the latest 2.0 version of Apache Spark and 2.7 version of Hadoop integrated with most commonly used tools. Learn all Spark stack components including latest topics such as DataFrames, DataSets, GraphFrames, Structured Streaming, DataFrame based ML Pipelines and SparkR. Integrations with frameworks such as HDFS, YARN and tools such as Jupyter, Zeppelin, NiFi, Mahout, HBase Spark Connector, GraphFrames, H2O and Hivemall. Who This Book Is For Though this book is primarily aimed at data analysts and data scientists, it will also help architects, programmers, and practitioners. Knowledge of either Spark or Hadoop would be beneficial. It is assumed that you have basic programming background in Scala, Python, SQL, or R programming with basic Linux experience. Working experience within big data environments is not mandatory. What You Will Learn Find out and implement the tools and techniques of big data analytics using Spark on Hadoop clusters with wide variety of tools used with Spark and Hadoop. Understand all the Hadoop and Spark ecosystem components. Get to know all the Spark components: Spark Core, Spark SQL, DataFrames, DataSets, Conventional and Structured Streaming, MLLib, ML Pipelines and Graphx. See batch and real-time data analytics using Spark Core, Spark SQL, and Conventional and Structured Streaming. Get to grips with data science and machine learning using MLLib, ML Pipelines, H2O, Hivemall, Graphx, SparkR and Hivemall. In Detail Big Data Analytics book aims at providing the fundamentals of Apache Spark and Hadoop. All Spark components – Spark Core, Spark SQL, DataFrames, Data sets, Conventional Streaming, Structured Streaming, MLLib, Graphx and Hadoop core components – HDFS, MapReduce and Yarn are explored in greater depth with implementation examples on Spark + Hadoop clusters. It is moving away from MapReduce to Spark. So, advantages of Spark over MapReduce are explained at great depth to reap benefits of in-memory speeds. DataFrames API, Data Sources API and new Data set API are explained for building Big Data analytical applications. Real-time data analytics using Spark Streaming with Apache Kafka and HBase is covered to help building streaming applications. New Structured streaming concept is explained with an IoT (Internet of Things) use case. Machine learning techniques are covered using MLLib, ML Pipelines and SparkR and Graph Analytics are covered with GraphX and GraphFrames components of Spark. Readers will also get an opportunity to get started with web based notebooks such as Jupyter, Apache Zeppelin and data flow tool Apache NiFi to analyze and visualize data. Style and approach This step-by-step pragmatic guide will make life easy no matter what your level of experience. You will deep dive into Apache Spark on Hadoop clusters through ample exciting real-life examples. Practical tutorial explains data science in simple terms to help programmers and data analysts get started.
Big Data Analytics with Spark

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.

Big Data

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.

Big Data Analytics

Addressing a broad range of big data analytics in cross-disciplinary applications, this essential handbook focuses on the statistical prospects offered by recent developments in this field. To do so, it covers statistical methods for high-dimensional problems, algorithmic designs, computation tools, analysis flows and the software-hardware co-designs that are needed to support insightful discoveries from big data. The book is primarily intended for statisticians, computer experts, engineers and application developers interested in using big data analytics with statistics. Readers should have a solid background in statistics and computer science.

Big Data: Concepts, Methodologies, Tools, and Applications

There are a number of books on computational intelligence (CI), but they tend to cover a broad range of CI paradigms and algorithms rather than provide an in-depth exploration in learning and adaptive mechanisms. This book sets its focus on CI based architectures, modeling, case studies and applications in big data analytics, and business intelligence. The intended audiences of this book are scientists, professionals, researchers, and academicians who deal with the new challenges and advances in the specific areas mentioned above. Designers and developers of applications in these areas can learn from other experts and colleagues through this book.

Big Data Analytics: Systems, Algorithms, Applications

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

Big Data Applications in Geography and Planning

Big data consists of data sets that are too large and complex for traditional data processing and data management applications. Therefore, to obtain the valuable information within the data, one must use a variety of innovative analytical methods, such as web analytics, machine learning, and network analytics. As the study of big data becomes more popular, there is an urgent demand for studies on high-level computational intelligence and computing services for analyzing this significant area of information science. Big Data Analytics for Sustainable Computing is a collection of innovative research that focuses on new computing and system development issues in emerging sustainable applications. Featuring coverage on a wide range of topics such as data filtering, knowledge engineering, and cognitive analytics, this publication is ideally designed for data scientists, IT specialists, computer science practitioners, computer engineers, academicians, professionals, and students seeking current research on emerging analytical techniques and data processing software.
Building Big Data Applications

“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”--

Knowledge Modelling and Big Data Analytics in Healthcare

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.

Enterprise Big Data Engineering, Analytics, and Management

The significance of big data can be observed in any decision-making process as it is often used for forecasting and predictive analytics. Additionally, big data can be used to build a holistic view of an enterprise through a collection and analysis of large data sets retrospectively. As the data deluge deepens, new methods for analyzing, comprehending, and making use of big data become necessary. Enterprise Big Data Engineering, Analytics, and Management presents novel methodologies and practical approaches to engineering, managing, and analyzing large-scale data sets with a focus on enterprise applications and implementation. Featuring essential big data concepts including data mining, artificial intelligence, and information extraction, this publication provides a platform for retargeting the current research available in the field. Data analysts, IT professionals, researchers, and graduate-level students will find the timely research presented in this publication essential to furthering their knowledge in the field.

Data Analytics and Big Data

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 cumulative knowledge of emerging supply chain problems.

Managerial Perspectives on Intelligent Big Data Analytics

Big data is presenting challenges to cybersecurity. For an example, the Internet of Things (IoT) will reportedly soon generate a staggering 400 zettabytes (ZB) of data a year. Self-driving cars are predicted to churn out 4000 GB of data per hour of driving. Big data analytics, as an emerging analytical technology, offers the capability to collect, store, process, and visualize these vast amounts of data. Big Data Analytics in Cybersecurity examines security challenges surrounding big data and provides actionable insights that can be used to improve the current practices of network operators and administrators. Applying big data analytics in cybersecurity is critical. By exploiting data from the networks and computers, analysts can discover useful network information from data. Decision makers can make more informative decisions by using this analysis, including what actions need to be performed, and improvement recommendations to policies, guidelines, procedures, tools, and other aspects of the network processes. Bringing together experts from academia, government laboratories, and industry, the book provides insight to both new and more experienced security professionals, as well as data analytics professionals who have varying levels of cybersecurity expertise. It covers a wide range of topics in cybersecurity, which includes: Network forensics Threat analysis Vulnerability assessment Visualization Cyber training. In addition, emerging security domains such as the IoT, cloud computing, fog computing, mobile computing, and cyber-social networks are examined. The book first focuses on how big data analytics can be used in different aspects of
cybersecurity including network forensics, root-cause analysis, and security training. Next it discusses big data challenges and solutions in such emerging cybersecurity domains as fog computing, IoT, and mobile app security. The book concludes by presenting the tools and datasets for future cybersecurity research.

**Machine Learning and Big Data Analytics Paradigms: Analysis, Applications and Challenges**

Data Science and Big Data Analytics is about harnessing the power of data for new insights. The book covers the breadth of activities and methods and tools that Data Scientists use. The content focuses on concepts, principles and practical applications that are applicable to any industry and technology environment, and the learning is supported and explained with examples that you can replicate using open-source software. This book will help you: Become a contributor on a data science team Deploy a structured lifecycle approach to data analytics problems Apply appropriate analytic techniques and tools to analyzing big data Learn how to tell a compelling story with data to drive business action Prepare for EMC Proven Professional Data Science Certification Corresponding data sets are available from the book’s page at Wiley which you can find on the Wiley site by searching for the ISBN 97811188876138. Get started discovering, analyzing, visualizing, and presenting data in a meaningful way today!

**Big Data Analytics in Cybersecurity**

Big Data Analytics and Intelligence is essential reading for researchers and experts working in the fields of health care, data science, analytics, the internet of things, and information retrieval.

**Computational Intelligence Applications in Business Intelligence and Big Data Analytics**

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

**Applications of Big Data in Healthcare**

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.

**Applications of Big Data Analytics**

Big data, analytics, and artificial intelligence are revolutionizing work, management, and lifestyles and are becoming disruptive technologies for healthcare, e-commerce, and web services. However, many fundamental, technological, and managerial issues for developing and applying intelligent big data analytics in these fields have yet to be addressed. Managerial Perspectives on Intelligent Big Data Analytics is a collection of innovative research that discusses the integration and application of artificial intelligence, business intelligence, digital transformation, and intelligent big data analytics from a perspective of computing, service, and management. While highlighting topics including e-commerce, machine learning, and fuzzy logic, this book is ideally designed for students, government officials, data scientists, managers, consultants, analysts, IT specialists, academicians, researchers, and industry professionals in fields that include big data, artificial intelligence, computing, and commerce.

**Big Data Applications and Use Cases**
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.

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