Big Data Big Challenges Big Opportunities

Big Data in Psychological Research provides an overview of big data theory, research design and analysis, collection methods, applications, ethical concerns, best practices, and future research directions for psychologists.

This book brings together an impressive range of academic and intelligence professional perspectives to interrogate the social, ethical and security upheavals in a world increasingly driven by data. Written in a clear and accessible style, it offers fresh insights to the deep reaching implications of Big Data for communication, privacy and organisational decision-making. It seeks to demystify developments around Big Data before evaluating their current and likely future implications for areas as diverse as corporate innovation, law enforcement, data science, journalism, and food security. The contributors call for a rethinking of the legal, ethical and philosophical frameworks that inform the responsibilities and behaviours of state, corporate, institutional and individual actors in a more networked, data-centric society. In doing so, the book addresses the real world risks, opportunities and potentialities of Big Data.

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

An examination of the uses of data within a changing knowledge infrastructure, offering analysis and case studies from the sciences, social sciences, and humanities. “Big Data” is on the covers of Science, Nature, the Economist, and Wired magazines, on the front pages of the Wall Street Journal and the New York Times. But despite the media hyperbole, as Christine Borgman points out in this examination of data and scholarly research, having the right data is usually better than having more data; little data can be just as valuable as big data. In many cases, there are no data—because relevant data don't exist, cannot be found, or are not available. Moreover, data sharing is difficult, incentives to do so are minimal, and data practices vary widely across disciplines. Borgman, an often-cited authority on scholarly communication, argues that data have no value or meaning in isolation; they exist within a knowledge infrastructure—an ecology of people, practices, technologies, institutions, material objects, and relationships. After laying out the premises of her investigation—six “provocations” meant to inspire discussion about the uses of data in scholarship—Borgman offers case studies

of data practices in the sciences, the social sciences, and the humanities, and then considers the implications of her findings for scholarly practice and research policy. To manage and exploit data over the long term, Borgman argues, requires massive investment in knowledge infrastructures; at stake is the future of scholarship.

The main objective of this book is to provide the necessary background to work with big data by introducing some novel optimization algorithms and codes capable of working in the big data setting as well as introducing some applications in big data optimization for both academics and practitioners interested, and to benefit society, industry, academia, and government. Presenting applications in a variety of industries, this book will be useful for the researchers aiming to analyses large scale data. Several optimization algorithms for big data including convergent parallel algorithms, limited memory bundle algorithm, diagonal bundle method, convergent parallel algorithms, network analytics, and many more have been explored in this book.

Effective healthcare delivery is a vital concern for citizens and communities across the globe. The numerous facets of this industry require constant re-evaluation and optimization of management techniques. The Handbook of Research on Healthcare Administration and Management is a pivotal reference source for the latest scholarly material on emerging strategies and methods for delivering optimal healthcare opportunities and solutions. Highlighting issues relating to decision making, process optimization, and technological applications, this book is ideally designed for policy makers, administrators, students, professionals, and researchers interested in achieving superior healthcare solutions.

Cloud computing has quickly become the next big step in security development for companies

and institutions all over the world. With the technology changing so rapidly, it is important that businesses carefully consider the available advancements and opportunities before implementing cloud computing in their organizations. The Handbook of Research on Security Considerations in Cloud Computing brings together discussion on current approaches to cloud-based technologies and assesses the possibilities for future advancements in this field. Highlighting the need for consumers to understand the unique nature of cloud-delivered security and to evaluate the different aspects of this service to verify if it will meet their needs, this book is an essential reference source for researchers, scholars, postgraduate students, and developers of cloud security systems.

This book reviews a number of issues including: Why data generated from POC machines are considered as Big Data. What are the challenges in storing, managing, extracting knowledge from data from POC devices? Why is it inefficient to use traditional data analysis with big data? What are the solutions for the mentioned issues and challenges? What type of analytics skills are required in health care? What big data technologies and tools can be used efficiently with data generated from POC devices? This book shows how it is feasible to store vast numbers of anonymous data and ask highly specific questions that can be performed in real-time to give precise and meaningful evidence to guide public health policy.

This Springer Brief provides a comprehensive overview of the background and recent developments of big data. The value chain of big data is divided into four phases: data generation, data acquisition, data storage and data analysis. For each phase, the book introduces the general background, discusses technical challenges and reviews the latest advances. Technologies under discussion include cloud computing, Internet of Things, data

centers, Hadoop and more. The authors also explore several representative applications of big data such as enterprise management, online social networks, healthcare and medical applications, collective intelligence and smart grids. This book concludes with a thoughtful discussion of possible research directions and development trends in the field. Big Data: Related Technologies, Challenges and Future Prospects is a concise yet thorough examination of this exciting area. It is designed for researchers and professionals interested in big data or related research. Advanced-level students in computer science and electrical engineering will also find this book useful.

Perspectives on the varied challenges posed by big data for health, science, law, commerce, and politics. Big data is ubiquitous but heterogeneous. Big data can be used to tally clicks and traffic on web pages, find patterns in stock trades, track consumer preferences, identify linguistic correlations in large corpuses of texts. This book examines big data not as an undifferentiated whole but contextually, investigating the varied challenges posed by big data for health, science, law, commerce, and politics. Taken together, the chapters reveal a complex set of problems, practices, and policies. The advent of big data methodologies has challenged the theory-driven approach to scientific knowledge in favor of a data-driven one. Social media platforms and self-tracking tools change the way we see ourselves and others. The collection of data by corporations and government threatens privacy while promoting transparency. Meanwhile, politicians, policy makers, and ethicists are ill-prepared to deal with big data's ramifications. The contributors look at big data's effect on individuals as it exerts social control through monitoring, mining, and manipulation; big data and society, examining both its empowering and its constraining effects; big data and science, considering issues of

data governance, provenance, reuse, and trust; and big data and organizations, discussing data responsibility, “data harm,” and decision making. Contributors Ryan Abbott, Cristina Alaimo, Kent R. Anderson, Mark Andrejevic, Diane E. Bailey, Mike Bailey, Mark Burdon, Fred H. Cate, Jorge L. Contreras, Simon DeDeo, Hamid R. Ekbia, Allison Goodwell, Jannis Kallinikos, Inna Kouper, M. Lynne Markus, Michael Mattioli, Paul Ohm, Scott Peppet, Beth Plale, Jason Portenoy, Julie Rennecker, Katie Shilton, Dan Sholler, Cassidy R. Sugimoto, Isuru Suriarachchi, Jevin D. West

This book highlights recent research on Intelligent Systems and Nature Inspired Computing. It presents 212 selected papers from the 18th International Conference on Intelligent Systems Design and Applications (ISDA 2018) and the 10th World Congress on Nature and Biologically Inspired Computing (NaBIC), which was held at VIT University, India. ISDA-NaBIC 2018 was a premier conference in the field of Computational Intelligence and brought together researchers, engineers and practitioners whose work involved intelligent systems and their applications in industry and the “real world.” Including contributions by authors from over 40 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of Computer Science and Engineering.

After a short description of the key concepts of big data the book explores on the secrecy and security threats posed especially by cloud based data storage. It delivers conceptual frameworks and models along with case studies of recent technology.

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 include: 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.

Healthcare transformation requires us to continually look at new and better ways to manage insights – both within and outside the organization today. Increasingly, the ability to glean and operationalize new insights efficiently as a byproduct of an organization’s day-to-day

operations is becoming vital to hospitals and health systems ability to survive and prosper. One of the long-standing challenges in healthcare informatics has been the ability to deal with the sheer variety and volume of disparate healthcare data and the increasing need to derive veracity and value out of it. Demystifying Big Data and Machine Learning for Healthcare investigates how healthcare organizations can leverage this tapestry of big data to discover new business value, use cases, and knowledge as well as how big data can be woven into pre-existing business intelligence and analytics efforts. This book focuses on teaching you how to: Develop skills needed to identify and demolish big-data myths Become an expert in separating hype from reality Understand the V's that matter in healthcare and why Harmonize the 4 C's across little and big data Choose data fi delity over data quality Learn how to apply the NRF Framework Master applied machine learning for healthcare Conduct a guided tour of learning algorithms Recognize and be prepared for the future of artificial intelligence in healthcare via best practices, feedback loops, and contextually intelligent agents (CIAs) The variety of data in healthcare spans multiple business workflows, formats (structured, un-, and semi-structured), integration at point of care/need, and integration with existing knowledge. In order to deal with these realities, the authors propose new approaches to creating a knowledge-driven learning organization-based on new and existing strategies, methods and technologies. This book will address the long-standing challenges in healthcare informatics and provide pragmatic recommendations on how to deal with them.

With the proliferation of devices connected to the internet and connected to each other, the volume of data collected, stored, and processed is increasing every day, which brings new challenges in terms of information security. As big data expands with the help of public clouds,

traditional security solutions tailored to private computing infrastructures and confined to a well-defined security perimeter, such as firewalls and demilitarized zones (DMZs), are no longer effective. New security functions are required to work over the heterogenous composition of diverse hardware, operating systems, and network domains. Security, Privacy, and Forensics Issues in Big Data is an essential research book that examines recent advancements in big data and the impact that these advancements have on information security and privacy measures needed for these networks. Highlighting a range of topics including cryptography, data analytics, and threat detection, this is an excellent reference source for students, software developers and engineers, security analysts, IT consultants, academicians, researchers, and professionals.

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.

This edited volume is devoted to Big Data Analysis from a Machine Learning standpoint as presented by some of the most eminent researchers in this area. It demonstrates that Big Data Analysis opens up new research problems which were either never considered before, or were only considered within a limited range. In addition to providing methodological discussions on the principles of mining Big Data and the difference between traditional statistical data analysis

and newer computing frameworks, this book presents recently developed algorithms affecting such areas as business, financial forecasting, human mobility, the Internet of Things, information networks, bioinformatics, medical systems and life science. It explores, through a number of specific examples, how the study of Big Data Analysis has evolved and how it has started and will most likely continue to affect society. While the benefits brought upon by Big Data Analysis are underlined, the book also discusses some of the warnings that have been issued concerning the potential dangers of Big Data Analysis along with its pitfalls and challenges.

Data availability is surpassing existing paradigms for governing, managing, analyzing, and interpreting health data. Big Data and Health Analytics provides frameworks, use cases, and examples that illustrate the role of big data and analytics in modern health care, including how public health information can inform health delivery.Written for healt

This groundbreaking book explores the new legal and economic challenges triggered by big data, and analyses the interactions among and between intellectual property, competition law, free speech, privacy and other fundamental rights vis-à-vis big data analysis and algorithms.

"The chapters in this volume offer useful case studies, technical roadmaps,

lessons learned, and a few prescriptions to ‘do this, avoid that.’" —From the Foreword by Joe LaCugna, Ph.D., Enterprise Analytics and Business Intelligence, Starbucks Coffee Company With the growing barrage of "big data," it becomes vitally important for organizations to make sense of this data and information in a timely and effective way. That’s where analytics come into play. Research shows that organizations that use business analytics to guide their decision making are more productive and experience higher returns on equity. Big Data and Business Analytics helps you quickly grasp the trends and techniques of big data and business analytics to make your organization more competitive. Packed with case studies, this book assembles insights from some of the leading experts and organizations worldwide. Spanning industry, government, not-for-profit organizations, and academia, they share valuable perspectives on big data domains such as cybersecurity, marketing, emergency management, healthcare, finance, and transportation. Understand the trends, potential, and challenges associated with big data and business analytics Get an overview of machine learning, advanced statistical techniques, and other predictive analytics that can help you solve big data issues Learn from VPs of Big Data/Insights & Analytics via case studies of Fortune 100 companies, government agencies, universities, and not-for-profits Big data problems are

complex. This book shows you how to go from being data-rich to insight-rich, improving your decision making and creating competitive advantage. Author Jay Liebowitz recently had an article published in The World Financial Review. www.worldfinancialreview.com/?p=1904

In today's fast growing digital world, the web, mobile, social networks and other digital platforms are producing enormous amounts of data that hold intelligence and valuable information. Correctly used it has the power to create sustainable value in different forms for businesses. The commonly used term for this data is Big Data, which includes structured, unstructured and hybrid structured data. However, Big Data is of limited value unless insightful information can be extracted from the sources of data. The solution is Big Data analytics, and how managers and executives can capture value from this vast resource of information and insights. This book develops a simple framework and a non-technical approach to help the reader understand, digest and analyze data, and produce meaningful analytics to make informed decisions. It will support value creation within businesses, from customer care to product innovation, from sales and marketing to operational performance. The authors provide multiple case studies on global industries and business units, chapter summaries and discussion questions for the reader to consider and explore. Big Data for

Managers also presents small cases and challenges for the reader to work on – making this a thorough and practical guide for students and managers.

There currently is no in-depth book dedicated to the challenge of the Internet of Everything and Big Data technologies in smart cities. Humankind today is confronting a critical worldwide portability challenge and the framework that moves cities must keep pace with the innovation. Internet of Everything and Big Data: Major Challenges in Smart Cities reviews the applications, technologies, standards, and other issues related to smart cities. This book is dedicated to addressing the major challenges in realizing smart cities and sensing platforms in the era of Big Data cities and Internet of Everything. Challenges vary from cost and energy efficiency to availability and service quality. This book examines security issues and challenges, addresses the total information science challenges, covers exploring and creating IoT environment-related sales adaptive systems, and investigates basic and high-level concepts using the latest techniques implemented by researchers and businesses. The book is written for analysts, researchers, and specialists who are working on the future generation of the technologies. It will serve as a valuable guide for those in the industry, and students as well.

Big Data, gathered together and re-analysed, can be used to form endless

variations of our persons - so-called ‘data doubles’. Whilst never a precise portrayal of who we are, they unarguably contain glimpses of details about us that, when deployed into various routines (such as management, policing and advertising) can affect us in many ways. How are we to deal with Big Data? When is it beneficial to us? When is it harmful? How might we regulate it? Offering careful and critical analyses, this timely volume aims to broaden well-informed, unprejudiced discourse, focusing on: the tenets of Big Data, the politics of governance and regulation; and Big Data practices, performance and resistance. An interdisciplinary volume, The Politics of Big Data will appeal to undergraduate and postgraduate students, as well as postdoctoral and senior researchers interested in fields such as Technology, Politics and Surveillance. Data science revolves around two giants: Big Data analytics and Deep Learning. It is becoming challenging to handle and retrieve useful information due to how fast data is expanding. This book presents the technologies and tools to simplify and streamline the formation of Big Data as well as Deep Learning systems. This book discusses how Big Data and Deep Learning hold the potential to significantly increase data understanding and decision-making. It also covers numerous applications in healthcare, education, communication, media, and entertainment. Integrating Deep Learning Algorithms to Overcome Challenges in

Big Data Analytics offers innovative platforms for integrating Big Data and Deep Learning and presents issues related to adequate data storage, semantic indexing, data tagging, and fast information retrieval. FEATURES Provides insight into the skill set that leverages one's strength to act as a good data analyst Discusses how Big Data and Deep Learning hold the potential to significantly increase data understanding and help in decision-making Covers numerous potential applications in healthcare, education, communication, media, and entertainment Offers innovative platforms for integrating Big Data and Deep Learning Presents issues related to adequate data storage, semantic indexing, data tagging, and fast information retrieval from Big Data This book is aimed at industry professionals, academics, research scholars, system modelers, and simulation experts.

The implementation of effective decision making protocols is crucial in any organizational environment in modern society. Emerging advancements in technology and analytics have optimized uses and applications of decision making systems. Decision Management: Concepts, Methodologies, Tools, and Applications is a compendium of the latest academic material on the control, support, usage, and strategies for implementing efficient decision making systems across a variety of industries and fields. Featuring comprehensive coverage on numerous perspectives,

such as data visualization, pattern analysis, and predictive analytics, this multi-volume book is an essential reference source for researchers, academics, professionals, managers, students, and practitioners interested in the maintenance and optimization of decision management processes.

Big data and the Internet of Things (IoT) play a vital role in prediction systems used in biological and medical applications, particularly for resolving issues related to disease biology at different scales. Modelling and integrating medical big data with the IoT helps in building effective prediction systems for automatic recommendations of diagnosis and treatment. The ability to mine, process, analyse, characterize, classify and cluster a variety and wide volume of medical data is a challenging task. There is a great demand for the design and development of methods dealing with capturing and automatically analysing medical data from imaging systems and IoT sensors. Addressing analytical and legal issues, and research on integration of big data analytics with respect to clinical practice and clinical utility, architectures and clustering techniques for IoT data processing, effective frameworks for removal of misclassified instances, practicality of big data analytics, methodological and technical issues, potential of Hadoop in managing healthcare data is the need of the hour. This book integrates different aspects used in the field of healthcare such as big data, IoT, soft computing, machine learning, augmented reality, organs on chip, personalized drugs, implantable electronics, integration of bio-interfaces, and wearable sensors, devices, practical body

area network (BAN) and architectures of web systems. Key Features: Addresses various applications of Medical Big Data and Internet of Medical Things in real time environment Highlights recent innovations, designs, developments and topics of interest in machine learning techniques for classification of medical data Provides background and solutions to existing challenges in Medical Big Data and Internet of Medical Things Provides optimization techniques and programming models to parallelize the computationally intensive tasks in data mining of medical data Discusses interactions, advantages, limitations, challenges and future perspectives of IoT based remote healthcare monitoring systems. Includes data privacy and security analysis of cryptography methods for the Web of Medical Things (WoMT) Presents case studies on the next generation medical chair, electronic nose and pill cam are also presented.
Big Data, Big Challenges: A Healthcare PerspectiveBackground, Issues, Solutions and Research DirectionsSpringer

"The application of big data analytics in all fields of research is a critical driver for the competitiveness of all countries in the modern world. Currently, governments and industry generate large amounts of data driven by record keeping, compliance, regulations, data privacy, and dynamic requirements, and thus there is a need to create better mechanisms to analyse data, and hence support organizational development, as well as providing aid to policymakers' decision-making processes. In this context, there are emerging disruptive opportunities because of Big Data: new business models, and

vertical industry segments will emerge through shared relationships with all the stakeholders, and big data analytics is a major asset to support these dynamic relationships. This book was developed with the objective of analysing some of those challenges while at the same time providing a perspective of the potential of big data analytics, and the importance that analytics have for managers and for policymakers, to help define new strategies and new public policies, respectively. The book is focused on different sectors of activity (i.e. the Health sector, Public Administration, the Education sector, among others), and on different economic dimensions (i.e. Entrepreneurship, and Innovation) and links big data analytics to different fields of research, such as artificial intelligence and other emergent technologies; which are challenging organisations, governments, and societies, with the need to face the new imperative of being prepared for the very uncertain and tremendously complex future - in which big data analytics will play a very decisive and active role"--

“Big data” has become a commonly used term to describe large-scale and complex data sets which are difficult to manage and analyze using standard data management methodologies. With applications across sectors and fields of study, the implementation and possible uses of big data are limitless. Effective Big Data Management and Opportunities for Implementation explores emerging research on the ever-growing field of big data and facilitates further knowledge development on methods for handling and interpreting large data sets. Providing multi-disciplinary perspectives fueled by

international research, this publication is designed for use by data analysts, IT professionals, researchers, and graduate-level students interested in learning about the latest trends and concepts in big data.

Big Data, Big Challenges in Evidence-Based Policy Making is a multi-disciplinary study of how to glean insights from massive data sets to make better public policy decisions. Using a combination of explanatory material, specific examples, and practical suggestions, the book teaches readers how to preserve, use, and publish big data. Each chapter provides real-life examples of how big data can be used in policy making. The book also provides practical insights from archivists and librarians who are on the forefront of preserving data and helping researchers find needed data. To complete the discussion of big data, the book provides a frank and nuanced discussion of privacy risks involved with big data. It also examines the political constraints on how to regulate privacy. In addition, the book offers a comparative review of privacy by examining the different privacy protections in the US and the EU, as well as the delicate system of trading private data between nations. This book can be used to supplement upper level law school courses as well as courses on public health, economics, political science, environmental studies, and information science. The contributors are: Margaret O'Neill Adams, Judith Amsalem, Paula Avila-Guillen, Ana Ayala, Tanya Baytor, Josh Blackman, Linda K. Breggin, Dianne Callan, Christin Cave, Kristofer A. Ekdahl, Francine E. Friedman, Aliza Glasner, Carole Roan Gresenz, James Grimmelmann,

Mark D. Johnson, Leslie Johnston, Susan C. Kim, John D. Kraemer, William G. LeFurgy, Jared Lyle, Kathryn Mengerink, Elizabeth Moss, Catherine Powell, Jason S. Roffenbender, Joshua C. Teitelbaum, Matthew C. Thomas, and Zachary Turk.

In today's market, emerging technologies are continually assisting in common workplace practices as companies and organizations search for innovative ways to solve modern issues that arise. Prevalent applications including internet of things, big data, and cloud computing all have noteworthy benefits, but issues remain when separately integrating them into the professional practices. Significant research is needed on converging these systems and leveraging each of their advantages in order to find solutions to real-time problems that still exist. Challenges and Opportunities for the Convergence of IoT, Big Data, and Cloud Computing is a pivotal reference source that provides vital research on the relation between these technologies and the impact they collectively have in solving real-world challenges. While highlighting topics such as cloud-based analytics, intelligent algorithms, and information security, this publication explores current issues that remain when attempting to implement these systems as well as the specific applications IoT, big data, and cloud computing have in various professional sectors. This book is ideally designed for academicians, researchers, developers, computer scientists, IT professionals, practitioners, scholars, students, and engineers seeking research on the integration of emerging technologies to solve modern societal issues.

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

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.

This is the first book offering a comprehensive, yet concise, view on both the challenges and opportunities related to the use of big data in health care. The different chapters report on different perspectives: from health management to patient safety; from the human factor perspective to the ethical and economic ones, and more. By providing a historical background on the use of big data, and critically analyzing current approaches together with issues and challenges related to their applications, the work presented not only sheds light on the problems of big data, but also paves the way for possible solutions and future research directions. The book offers a useful reference guide to health information technology professionals, healthcare managers, healthcare practitioners, and patients alike, helping them in their decision making processes, as well as to students and academicians learning or dealing with data science related research issues in healthcare.

Big Data: Principles and Paradigms captures the state-of-the-art research on the architectural

aspects, technologies, and applications of Big Data. The book identifies potential future directions and technologies that facilitate insight into numerous scientific, business, and consumer applications. To help realize Big Data's full potential, the book addresses numerous challenges, offering the conceptual and technological solutions for tackling them. These challenges include life-cycle data management, large-scale storage, flexible processing infrastructure, data modeling, scalable machine learning, data analysis algorithms, sampling techniques, and privacy and ethical issues. Covers computational platforms supporting Big Data applications Addresses key principles underlying Big Data computing Examines key developments supporting next generation Big Data platforms Explores the challenges in Big Data computing and ways to overcome them Contains expert contributors from both academia and industry

The growth of data-collecting goods and services, such as ehealth and mhealth apps, smart watches, mobile fitness and dieting apps, electronic skin and ingestible tech, combined with recent technological developments such as increased capacity of data storage, artificial intelligence and smart algorithms, has spawned a big data revolution that has reshaped how we understand and approach health data. Recently the COVID-19 pandemic has foregrounded a variety of data privacy issues. The collection, storage, sharing and analysis of health- related data raises major legal and ethical questions relating to privacy, data protection, profiling, discrimination, surveillance, personal autonomy and dignity. This book examines health privacy questions in light of the General Data Protection Regulation (GDPR) and the general data privacy legal framework of the European Union (EU). The GDPR is a complex and evolving body of law that aims to deal with several technological and societal health data privacy

problems, while safeguarding public health interests and addressing its internal gaps and uncertainties. The book answers a diverse range of questions including: What role can the GDPR play in regulating health surveillance and big (health) data analytics? Can it catch up with internet-age developments? Are the solutions to the challenges posed by big health data to be found in the law? Does the GDPR provide adequate tools and mechanisms to ensure public health objectives and the effective protection of privacy? How does the GDPR deal with data that concern children's health and academic research? By analysing a number of diverse questions concerning big health data under the GDPR from various perspectives, this book will appeal to those interested in privacy, data protection, big data, health sciences, information technology, the GDPR, EU and human rights law.

This book is a wonderful collection of chapters that posits how managers need to cope in the Big Data era. It highlights many of the emerging developments in technologies, applications, and trends related to management's needs in this Big Data era. —Dr. Jay Liebowitz, Harrisburg University of Science and Technology This book presents some meaningful work on Big Data analytics and its applications. Each chapter generates helpful guidance to the readers on Big Data analytics and its applications, challenges, and prospects that is necessary for organizational strategic direction. —Dr. Alex Koohang, Middle Georgia State University Big Data is a concept that has caught the attention of practitioners, academicians, and researchers. Big Data offers organizations the possibility of gaining a competitive advantage by managing, collecting, and analyzing massive amounts of data. As the promises and challenges posed by Big Data have increased over the past decade, significant issues have developed regarding how data can be used for improving management. Big Data can be understood as large

amounts of data generated by the Internet and a variety of connected smart devices and sensors. This book discusses the main challenges posed by Big Data in a manner relevant to both practitioners and scholars. It examines how companies can leverage Big Data analytics to act and optimize the business. This book brings together the theory and practice of management in the era of Big Data. It offers a look at the current state of Big Data, including a comprehensive overview of both research and practical applications. By bringing together conceptual thinking and empirical research on the nature, meaning, and development of Big Data in management, this book unifies research on Big Data in management to stimulate new directions for academic investigation as well as practice.

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.

This is the first book to offer a comprehensive yet concise overview of the challenges and opportunities presented by the use of big data in healthcare. The respective chapters address

a range of aspects: from health management to patient safety; from the human factor perspective to ethical and economic considerations, and many more. By providing a historical background on the use of big data, and critically analyzing current approaches together with issues and challenges related to their applications, the book not only sheds light on the problems entailed by big data, but also paves the way for possible solutions and future research directions. Accordingly, it offers an insightful reference guide for health information technology professionals, healthcare managers, healthcare practitioners, and patients alike, aiding them in their decision-making processes; and for students and researchers whose work involves data science-related research issues in healthcare.

Big Data is now highly regarded and accepted as a useful tool to help organizations manage their data and information effectively and efficiently. This new volume, The Emerging Technology of Big Data: Its Impact as a Tool for ICT Development, looks at the new technology that has emerged to meet the growing need and demand and studies the impact of Big Data in several areas of today's society, including social media, business process re-engineering, science, e-learning, higher education, business intelligence, and green computing. In today's modern society, information system (IS) through Big Data contributes to the success of organizations because it provides a solid foundation for increasing both efficiency and productivity. Many business organizations and educational institutions realize that compliance with Big Data will affect their prospects for success. Everyday, the amount of data collected from digital tools grows tremendously. As the amount of data increases, the use of IS becomes more and more essential. The book looks at how large datasets and analytics have slowly crept into the world of education and discusses methods of teaching and learning

and the collection of student-learning data. The final chapter of the book considers the environmental impacts of ICT and emphasizes green ICT awareness as a corporate strategy through information systems. The global ICT industry accounts for approximately 2 percent of global carbon dioxide (CO2) emissions, and the manufacture, shipping, and disposal of ICT equipment also contributes environmentally. This chapter addresses these issues. The information provided here will be valuable information for education professionals, businesses, faculty, scientists and researchers, and others.