

Planning For Big Data

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Big Data in Practice Bernard Marr 2016-03-22 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 utilize 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

Big Data Support of Urban Planning and Management Zhenjiang Shen 2017-09-26 In the era of big data, this book explores the new challenges of urban-rural planning and management from a practical perspective based on a multidisciplinary project. Researchers as contributors to this book have accomplished their projects by using big data and relevant data mining technologies for investigating the possibilities of big data, such as that obtained through cell phones, social network systems and smart cards instead of conventional survey data for urban planning support. This book showcases active researchers who share their experiences and ideas on human mobility, accessibility and recognition of places, connectivity of transportation and urban structure in order to provide effective analytic and forecasting tools for smart city planning and design solutions in China.

Big Data, Analytics, and the Future of Marketing and Sales McKinsey Chief Marketing & Sales Officer Forum 2014-08-02 Big Data is the biggest game-changing opportunity for marketing and sales since the Internet went mainstream almost 20 years ago. The data big bang has unleashed torrents of terabytes about everything from customer behaviors to weather patterns to demographic consumer shifts in emerging markets. This collection of articles, videos, interviews, and slideshares highlights the most important lessons for companies looking to turn data into above-market growth: Using analytics to identify valuable business opportunities from the data to drive decisions and improve marketing return on investment (MROI) Turning those insights into well-designed products and offers that delight customers Delivering those products and offers effectively to the marketplace. The goldmine of data represents a pivot-point moment for marketing and sales leaders. Companies that inject big data and analytics into their operations show productivity rates and profitability that are 5 percent to 6 percent higher than those of their peers. That's an advantage no company can afford to ignore.

Big Data For Dummies Judith S. Hurwitz 2013-04-02 Find the right big data solution for your business or organization Big data management is one of the major challenges facing business, industry, and not-for-profit organizations. Data sets such as customer transactions for a mega-retailer, weather patterns monitored by meteorologists, or social network activity can quickly outpace the capacity of traditional data management tools. If you need to develop or manage big data solutions, you'll appreciate how these four experts define, explain, and guide you through this new and often confusing concept. You'll learn what it is, why it matters, and how to choose and implement solutions that work. Effectively managing big data is an issue of growing importance to businesses, not-for-profit organizations, government, and IT professionals. Authors are experts in information management, big data, and a variety of solutions. Explains big data in detail and discusses how to select and implement a solution, security concerns to consider, data storage and presentation issues, analytics, and much more Provides essential information in a no-nonsense, easy-to-understand style that is empowering Big Data For Dummies cuts through the confusion and helps you take charge of big data solutions for your organization.

Big Data For Small Business For Dummies Bernard Marr 2016-01-05 Capitalise on big data to add value to your small business Written by bestselling author and big data expert Bernard Marr, Big Data For Small Business For Dummies helps you understand what big data actually is—and how you can analyse and use it to improve your business. Free of confusing jargon and complemented with lots of step-by-step guidance and helpful advice, it quickly and painlessly helps you get the most from using big data in a small business. Business data has been around for a long time. Unfortunately, it was trapped away in overcrowded filing cabinets and on archaic floppy disks. Now, thanks to technology and new tools that display complex databases in a much simpler manner, small businesses can benefit from the big data that's been hiding right under their noses. With the help of this friendly guide, you'll discover how to get your hands on big data to develop new offerings, products and services; understand technological change; create an infrastructure; develop strategies; and make smarter business decisions. Shows you how to use big data to make sense of user activity on social networks and customer transactions Demonstrates how to capture, store, search, share, analyse and visualise analytics Helps you turn your data into actionable insights Explains how to use big data to your advantage in order to transform your small business If you're a small business owner or employee, Big Data For Small Business For Dummies helps you harness the hottest commodity on the market today in order to take your company to new heights.

Handbook of Research on Developing Smart Cities Based on Digital Twins Del Giudice, Matteo 2021-01-15 The advent of connected, smart technologies for the built environment may promise a significant value that has to be reached to develop digital city models. At the international level, the role of digital twin is strictly related to massive amounts of data that need to be processed, which proposes several challenges in terms of digital technologies capability, computing, interoperability, simulation, calibration, and representation. In these terms, the development of 3D parametric models as digital twins to evaluate energy assessment of private and public buildings is considered one of the main challenges of the last years. The ability to gather, manage, and communicate contents related to energy saving in buildings for the development of smart cities must be considered a specificity in the age of connection to increase citizen awareness of these fields. The Handbook of Research on Developing Smart Cities Based on Digital Twins contains in-depth research focused on the description of methods, processes, and tools that can be adopted to achieve smart city goals. The book presents a valid medium for disseminating innovative data management methods related to smart city topics. While highlighting topics such as data visualization, a web-based ICT platform, and data-sharing methods, this book is ideally intended for researchers in the building industry, energy, and computer science fields; public administrators; building managers; and energy professionals along with practitioners, stakeholders, researchers, academicians, and students interested in the implementation of smart technologies for the built environment.

Big Data Bernard Marr 2015-01-09 Convert the promise of big data into real world results There is so much buzz around big data. We all need to know what it is and how it works - that much is obvious. But is a basic understanding of the theory enough to hold your own in strategy meetings? Probably. But what will set you apart from the rest is actually knowing how to USE big data to get solid, real-world business results - and putting that in place to improve performance. Big Data will give you a clear understanding, blueprint, and step-by-step approach to building your own big data strategy. This is a well-needed practical introduction to actually putting the topic into practice. Illustrated with numerous real-world examples from a cross section of companies and organisations, Big Data will take you through the five steps of the SMART model: Start with Strategy, Measure Metrics and Data, Apply Analytics, Report Results, Transform. Discusses how companies need to clearly define what it is they need to know Outlines how companies can collect relevant data and measure the metrics that will help them answer their most important business questions Addresses how the results of big data analytics can be visualised and communicated to ensure key decisions-makers understand them Includes many high-profile case studies from the author's work with some of the world's best known brands

Mobility Patterns, Big Data and Transport Analytics Constantinos Antoniou 2018-11-27 Mobility Patterns, Big Data and Transport Analytics provides a guide to the new analytical framework and its relation to big data, focusing on capturing, predicting, visualizing and controlling mobility patterns - a key aspect of transportation modeling. The book features prominent international experts who provide overviews on new analytical frameworks, applications and concepts in mobility analysis and transportation systems. Users will find a detailed, mobility 'structural' analysis and a look at the extensive behavioral characteristics of transport, observability requirements and limitations for realistic transportation applications and transportation systems analysis that are related to complex processes and phenomena. This book bridges the gap between big data, data science, and transportation systems analysis with a study of big data's impact on mobility and an introduction to the tools necessary to apply new techniques. The book covers in detail, mobility 'structural' analysis (and its dynamics), the extensive behavioral characteristics of transport, observability requirements and limitations for realistic transportation applications, and transportation systems analysis related to complex processes and phenomena. The book bridges the gap between big data, data science, and Transportation Systems Analysis with a study of big data's impact on mobility, and an introduction to the tools necessary to apply new techniques. Guides readers through the paradigm-shifting opportunities and challenges of handling Big Data in transportation modeling and analytics Covers current analytical innovations focused on capturing, predicting, visualizing, and controlling mobility patterns, while discussing future trends Delivers an introduction to transportation-related information advances, providing a benchmark reference by world-leading experts in the field Captures and manages mobility patterns, covering multiple purposes and alternative transport modes, in a multi-disciplinary approach Companion website features videos showing the analyses performed, as well as test codes and data-sets, allowing readers to recreate the presented analyses and apply the highlighted techniques to their own data

Big Data at Work Thomas Davenport 2014-02-04 Go ahead, be skeptical about big data. The author was—at first. When the term “big data” first came on the scene, bestselling author Tom Davenport (Competing on Analytics, Analytics at Work) thought it was just another example of technology hype. But his research in the years that followed changed his mind. Now, in clear, conversational language, Davenport explains what big data means—and why everyone in business needs to know about it. Big Data at Work covers all the bases: what big data means from a technical, consumer, and management perspective; what its opportunities and costs are; where it can have real business impact; and which aspects of this hot topic have been oversold. This book will help you understand:

- Why big data is important to you and your organization
- What technology you need to manage it
- How big data could change your job, your company, and your industry
- How to hire, rent, or develop the kinds of people who make big data work
- The key success factors in implementing any big data project
- How big data is leading to a new approach to managing analytics

With dozens of company examples, including UPS, GE, Amazon, United Healthcare, Citigroup, and many others, this book will help you seize all opportunities—from improving decisions, products, and services to strengthening customer relationships. It will show you how to put big data to work in your own organization so that you too can harness the power of this ever-evolving new resource.

Big Data Analytics David Loshin 2013-08-23 Big Data Analytics will assist managers in providing an overview of the drivers for introducing big data technology into the organization and for understanding the types of business problems best suited to big data analytics solutions, understanding the value drivers and benefits, strategic planning, developing a pilot, and eventually planning to integrate back into production within the enterprise. Guides the reader in assessing the opportunities and value proposition Overview of big data hardware and software architectures Presents a variety of technologies and how they fit into the big data ecosystem

The Enterprise Big Data Lake Alex Gorelik 2019-02-21 The data lake is a daring new approach for harnessing the power of big data technology and providing convenient self-service capabilities. But is it right for your company? This book is based on discussions with practitioners and executives from more than a hundred organizations, ranging from data-driven companies such as Google, LinkedIn, and Facebook, to governments and traditional corporate enterprises. You'll learn what a data lake is, why enterprises need one, and how to build one successfully with the best practices in this book. Alex Gorelik, CTO and founder of Waterline Data, explains why old systems and processes can no longer support data needs in the enterprise. Then, in a collection of essays about data lake implementation, you'll examine data lake initiatives, analytic projects, experiences, and best practices from data experts working in various industries. Get a succinct introduction to data warehousing, big data, and data science Learn various paths enterprises take to build a data lake Explore how to build a self-service model and best practices for providing analysts access to the data Use different methods for architecting your data lake Discover ways to implement a data lake from experts in different industries

Big Data Nasir Raheem 2019-02-21 Big Data: A Tutorial-Based Approach explores the tools and techniques used to bring about the marriage of structured and unstructured data. It focuses on Hadoop Distributed Storage and MapReduce Processing by implementing (i) Tools and Techniques of Hadoop Eco System, (ii) Hadoop Distributed File System Infrastructure, and (iii) efficient MapReduce processing. The book includes Use Cases and Tutorials to provide an integrated approach that answers the 'What', 'How', and 'Why' of Big Data. Features Identifies the primary drivers of

Big Data Walks readers through the theory, methods and technology of Big Data Explains how to handle the 4 V's of Big Data in order to extract value for better business decision making Shows how and why data connectors are critical and necessary for Agile text analytics Includes in-depth tutorials to perform necessary set-ups, installation, configuration and execution of important tasks Explains the command line as well as GUI interface to a powerful data exchange tool between Hadoop and legacy r-dbms databases

Architecting Modern Data Platforms Jan Kunigk 2018-12-05 There's a lot of information about big data technologies, but splicing these technologies into an end-to-end enterprise data platform is a daunting task not widely covered. With this practical book, you'll learn how to build big data infrastructure both on-premises and in the cloud and successfully architect a modern data platform. Ideal for enterprise architects, IT managers, application architects, and data engineers, this book shows you how to overcome the many challenges that emerge during Hadoop projects. You'll explore the vast landscape of tools available in the Hadoop and big data realm in a thorough technical primer before diving into: Infrastructure: Look at all component layers in a modern data platform, from the server to the data center, to establish a solid foundation for data in your enterprise Platform: Understand aspects of deployment, operation, security, high availability, and disaster recovery, along with everything you need to know to integrate your platform with the rest of your enterprise IT Taking Hadoop to the cloud: Learn the important architectural aspects of running a big data platform in the cloud while maintaining enterprise security and high availability

Big Data Analytics Arun K. Somani 2017-10-30 The proposed book will discuss various aspects of big data Analytics. It will deliberate upon the tools, technology, applications, use cases and research directions in the field. Chapters would be contributed by researchers, scientist and practitioners from various reputed universities and organizations for the benefit of readers.

Planning for Big Data Edd Wilder-James 2012-03-12 In an age where everything is measurable, understanding big data is an essential. From creating new data-driven products through to increasing operational efficiency, big data has the potential to make your organization both more competitive and more innovative. As this emerging field transitions from the bleeding edge to enterprise infrastructure, it's vital to understand not only the technologies involved, but the organizational and cultural demands of being data-driven. Written by O'Reilly Radar's experts on big data, this anthology describes: The broad industry changes heralded by the big data era What big data is, what it means to your business, and how to start solving data problems The software that makes up the Hadoop big data stack, and the major enterprise vendors' Hadoop solutions The landscape of NoSQL databases and their relative merits How visualization plays an important part in data work

Applied Data Analysis for Urban Planning and Management Alasdair Rae 2021-10-09 With contributions from academics across the globe, this book showcases how you can use data analysis for better and more effective urban planning and management.

Planning for Big Data Jibran Najjar 2014-11-26 Introduction Data warehousing is a success, judging by its 25 year history of use across all industries. Business intelligence met the needs it was designed for: to give non-technical people within the organization access to important, shared data. During the same period that data warehousing and BI matured, the automation and instrumenting of almost all processes and activities changed the data landscape in most companies. Where there were only a few applications and minimal monitoring 25 years ago, there is ubiquitous computing and data available about every activity today. Data warehouses have not been able to keep up with business demands for new sources of information, new types of data, more complex analysis and greater speed. Companies can put this data to use in countless ways, but for most it remains uncollected or unused, locked away in silos within IT. There has been a gradual maturing of data use in organizations. In the early days of BI it was enough to provide access to core financial and customer transactions. Better access enabled process changes, and these led to the need for more data and more varied uses of information. These changes put increasing strain on information processing and delivery capabilities that were designed under assumptions of stability and common use. Most companies now have a backlog of new data and analysis requests that BI groups are struggling to meet. Big data is not simply about growing data volumes - it's also about the fact that the data being collected today is different in ways that make it unwieldy for conventional databases and BI tools. Big data is also about new technologies that were developed to support the storage, retrieval and processing of this new data. The technologies originated in the world of web applications and internet-based companies, but they are now spreading into enterprise applications of all sorts. New technology coupled with new data enables new practices like real-time monitoring of operations across retail channels, supply chain practices at finer grain and faster speed, and analysis of customers at the level of individual activities and behaviors. Until recently, large scale data collection and analysis capabilities like these would have required a Wal-Mart sized investment, limiting them to large organizations. These capabilities are now available to all, regardless of company size or budget. This is creating a rush to adopt big data technologies. As the use of big data grows, the need for data management will grow. Many organizations already struggle to manage existing data. Big data adds complexity, which will only increase the challenge. The combination of new data and new technology requires new data management capabilities and processes to capture the promised long-term value. Wal-Mart handles more than a million customer transactions each hour and imports those into databases estimated to contain more than 2.5 petabytes of data. Radio frequency identification (RFID) systems used by retailers and others can generate 100 to 1,000 times the data of conventional bar code systems. Facebook handles more than 250 million photo uploads and the interactions of 800 million active users with more than 900 million objects (pages, groups, etc.) - each day. More than 5 billion people are calling, texting, tweeting and browsing on mobile phones worldwide. Organizations are inundated with data - terabytes and petabytes of it. To put it in context, 1 terabyte contains 2,000 hours of CD-quality music and 10 terabytes could store the entire US Library of Congress print collection. Exabytes, zettabytes and yottabytes definitely are on the horizon . Data is pouring in from every conceivable direction: from operational and transactional systems, from scanning and facilities management systems, from inbound and outbound customer contact points, from mobile media and the Web .

Data Strategy Bernard Marr 2017-04-03 BRONZE RUNNER UP: Axiom Awards 2018 - Business Technology Category Less than 0.5 per cent of all data is currently analyzed and used. However, business leaders and managers cannot afford to be unconcerned or sceptical about data. Data is revolutionizing the way we work and it is the companies that view data as a strategic asset that will survive and thrive. Data Strategy is a must-have guide to creating a robust data strategy. Explaining how to identify your strategic data needs, what methods to use to collect the data and, most importantly, how to translate your data into organizational insights for improved business decision-making and performance, this is essential reading for anyone aiming to leverage the value of their business data and gain competitive advantage. Packed with case studies and real-world examples, advice on how to build data competencies in an organization and crucial coverage of how to ensure your data doesn't become a liability, Data Strategy will equip any organization with the tools and strategies it needs to profit from Big Data, analytics and the Internet of Things (IoT).

Big Data Viktor Mayer-Schönberger 2013 This revelatory exploration of big data, which refers to our newfound ability to crunch vast amounts of information, analyze it instantly and draw profound and surprising conclusions from it, discusses how it will change our lives and what we can do to protect ourselves from its hazards. 75,000 first printing. **Uncertain Archives** Nanna Bonde Thylstrup 2021-02-02 Scholars from a range of disciplines interrogate terms relevant to critical studies of big data, from abuse and aggregate to visualization and vulnerability. This pathbreaking work offers an interdisciplinary perspective on big data, interrogating key terms. Scholars from a range of disciplines interrogate concepts relevant to critical studies of big data--arranged glossary style, from from abuse and aggregate to visualization and vulnerability--both challenging conventional usage of such often-used terms as prediction and objectivity and introducing such unfamiliar ones as overfitting and copynorm. The contributors include both leading researchers, including N. Katherine Hayles, Johanna Drucker and Lisa Gitelman, and such emerging agenda-setting scholars as Safiya Noble, Sarah T. Roberts and Nicole Starosielski.

Big Data to Improve Strategic Network Planning in Airlines Maximilian Schosser 2019-09-05 Big data has become an important success driver in airline network planning. Maximilian Schosser explores the status quo of network planning across a case study group consisting of nine airlines representing different business models. The author describes 23 big data opportunities for airline network planning and evaluates them based on their specific value contribution for airline network planning. Subsequently, he develops a financial evaluation methodology for big data opportunities based on key performance indicators for airline network planning departments.

People Analytics in the Era of Big Data Jean Paul Isson 2016-04-21 Apply predictive analytics throughout all stages of workforce management People Analytics in the Era of Big Data provides a blueprint for leveraging your talent pool through the use of data analytics. Written by the Global Vice President of Business Intelligence and Predictive Analytics at Monster Worldwide, this book is packed full of actionable insights to help you source, recruit, acquire, engage, retain, promote, and manage the exceptional talent your organization needs. With a unique approach that applies analytics to every stage of the hiring process and the entire workforce planning and management cycle, this informative guide provides the key perspective that brings analytics into HR in a truly useful way. You're already inundated with disparate employee data, so why not mine that data for insights that add value to your organization and strengthen your workforce? This book presents a practical framework for real-world talent analytics, backed by groundbreaking examples of workforce analytics in action across the U.S., Canada, Europe, Asia, and Australia. Leverage predictive analytics throughout the hiring process Utilize analytics techniques for more effective workforce management Learn how people analytics benefits organizations of all sizes in various industries Integrate analytics into HR practices seamlessly and thoroughly Corporate executives need fact-based insights into what will happen with their talent. Who should you hire? Who should you promote? Who are the top or bottom performers, and why? Who is at risk to quit, and why? Analytics can provide these answers, and give you insights based on quantifiable data instead of gut feeling and subjective assessment. People Analytics in the Era of Big Data is the essential guide to optimizing your workforce with the tools already at your disposal.

Spatial Planning in the Big Data Revolution Voghera, Angioletta 2019-03-15 Through interaction with other databases such as social media, geographic information systems have the ability to build and obtain not only statistics defined on the flows of people, things, and information but also on perceptions, impressions, and opinions about specific places, territories, and landscapes. It is thus necessary to systematize, integrate, and coordinate the various sources of data (especially open data) to allow more appropriate and complete analysis, descriptions, and elaborations. Spatial Planning in the Big Data Revolution is a critical scholarly resource that aims to bring together different methodologies that combine the potential of large data analysis with GIS applications in dedicated tools specifically for territorial, social, economic, environmental, transport, energy, real estate, and landscape evaluation.

Additionally, the book addresses a number of fundamental objectives including the application of big data analysis in supporting territorial analysis, validating crowdsourcing and crowdmapping techniques, and disseminating information and community involvement. Urban planners, architects, researchers, academicians, professionals, and practitioners in such fields as computer science, data science, and business intelligence will benefit most from the research contained within this publication.

Planning for big data O'Reilly Radar Team 2013

Security, Privacy, and Forensics Issues in Big Data Joshi, Ramesh C. 2019-08-30 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 heterogeneous 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.

Big Data Science and Analytics for Smart Sustainable Urbanism Simon Elias Bibri 2019-05-30 We are living at the dawn of what has been termed 'the fourth paradigm of science,' a scientific revolution that is marked by both the emergence of big data science and analytics, and by the increasing adoption of the underlying technologies in scientific and scholarly research practices. Everything about science development or knowledge production is fundamentally changing thanks to the ever-increasing deluge of data. This is the primary fuel of the new age, which powerful computational processes or analytics algorithms are using to generate valuable knowledge for enhanced decision-making, and deep insights pertaining to a wide variety of practical uses and applications. This book addresses the complex interplay of the scientific, technological, and social dimensions of the city, and what it entails in terms of the systemic

implications for smart sustainable urbanism. In concrete terms, it explores the interdisciplinary and transdisciplinary field of smart sustainable urbanism and the unprecedented paradigmatic shifts and practical advances it is undergoing in light of big data science and analytics. This new era of science and technology embodies an unprecedentedly transformative and constitutive power—manifested not only in the form of revolutionizing science and transforming knowledge, but also in advancing social practices, producing new discourses, catalyzing major shifts, and fostering societal transitions. Of particular relevance, it is instigating a massive change in the way both smart cities and sustainable cities are studied and understood, and in how they are planned, designed, operated, managed, and governed in the face of urbanization. This relates to what has been dubbed data-driven smart sustainable urbanism, an emerging approach based on a computational understanding of city systems and processes that reduces urban life to logical and algorithmic rules and procedures, while also harnessing urban big data to provide a more holistic and integrated view or synoptic intelligence of the city. This is increasingly being directed towards improving, advancing, and maintaining the contribution of both sustainable cities and smart cities to the goals of sustainable development. This timely and multifaceted book is aimed at a broad readership. As such, it will appeal to urban scientists, data scientists, urbanists, planners, engineers, designers, policymakers, philosophers of science, and futurists, as well as all readers interested in an overview of the pivotal role of big data science and analytics in advancing every academic discipline and social practice concerned with data-intensive science and its application, particularly in relation to sustainability.

Encyclopedia of Big Data Laurie A. Schintler 2022-02-23 This encyclopedia will be an essential resource for our times, reflecting the fact that we currently are living in an expanding data-driven world. Technological advancements and other related trends are contributing to the production of an astoundingly large and exponentially increasing collection of data and information, referred to in popular vernacular as “Big Data.” Social media and crowdsourcing platforms and various applications – “apps” – are producing reams of information from the instantaneous transactions and input of millions and millions of people around the globe. The Internet-of-Things (IoT), which is expected to comprise tens of billions of objects by the end of this decade, is actively sensing real-time intelligence on nearly every aspect of our lives and environment. The Global Positioning System (GPS) and other location-aware technologies are producing data that is specific down to particular latitude and longitude coordinates and seconds of the day. Large-scale instruments, such as the Large Hadron Collider (LHC), are collecting massive amounts of data on our planet and even distant corners of the visible universe. Digitization is being used to convert large collections of documents from print to digital format, giving rise to large archives of unstructured data. Innovations in technology, in the areas of Cloud and molecular computing, Artificial Intelligence/Machine Learning, and Natural Language Processing (NLP), to name only a few, also are greatly expanding our capacity to store, manage, and process Big Data. In this context, the Encyclopedia of Big Data is being offered in recognition of a world that is rapidly moving from gigabytes to terabytes to petabytes and beyond. While indeed large data sets have long been around and in use in a variety of fields, the era of Big Data in which we now live departs from the past in a number of key respects and with this departure comes a fresh set of challenges and opportunities that cut across and affect multiple sectors and disciplines, and the public at large. With expanded analytical capacities at hand, Big Data is now being used for scientific inquiry and experimentation in nearly every (if not all) disciplines, from the social sciences to the humanities to the natural sciences, and more. Moreover, the use of Big Data has been well established beyond the Ivory Tower. In today’s economy, businesses simply cannot be competitive without engaging Big Data in one way or another in support of operations, management, planning, or simply basic hiring decisions. In all levels of government, Big Data is being used to engage citizens and to guide policy making in pursuit of the interests of the public and society in general. Moreover, the changing nature of Big Data also raises new issues and concerns related to, for example, privacy, liability, security, access, and even the veracity of the data itself. Given the complex issues attending Big Data, there is a real need for a reference book that covers the subject from a multi-disciplinary, cross-sectoral, comprehensive, and international perspective. The Encyclopedia of Big Data will address this need and will be the first of such reference books to do so. Featuring some 500 entries, from “Access” to “Zillow,” the Encyclopedia will serve as a fundamental resource for researchers and students, for decision makers and leaders, and for business analysts and purveyors. Developed for those in academia, industry, and government, and others with a general interest in Big Data, the encyclopedia will be aimed especially at those involved in its collection, analysis, and use. Ultimately, the Encyclopedia of Big Data will provide a common platform and language covering the breadth and depth of the topic for different segments, sectors, and disciplines.

Big Data Applications in Geography and Planning Mark Birkin 2021-05-28 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.

Advances in Urban Planning in Developing Nations Arnab Jana 2021-05-27 This book studies the increasing use of data analytics and technology in urban planning and development in developing nations. It examines the application of urban science and engineering in different sectors of urban planning and looks at the challenges involved in planning 21st-century cities, especially in India. The volume analyzes various key themes such as auditory/visual sensing, network analysis and spatial planning, and decision-making and management in the planning process. It also studies the application of big data, geographic information systems, and information and communications technology in urban planning. Finally, it provides data-driven approaches toward holistic and optimal urban solutions for challenges in transportation planning, housing, and conservation of vulnerable urban zones like coastal areas and open spaces. Well supplemented with rigorous case studies, the book will be of interest to scholars and researchers of architecture, architectural and urban planning, and urban analytics. It will also be useful for professionals involved in smart city planning, planning authorities, urban scientists, and municipal and local bodies.

Data Science and Big Data Analytics EMC Education Services 2015-01-05 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 9781118876138. Get started discovering, analyzing, visualizing, and presenting data in a meaningful way today!

Planning for Big Data Edd Dumbill 2014-08-14 In an age where everything is measurable, understanding big data is an essential. From creating new data-driven products through to increasing operational efficiency, big data has the potential to make your organization both more competitive and more innovative. As this emerging field transitions from the bleeding edge to enterprise infrastructure, it’s vital to understand not only the technologies involved, but the organizational and cultural demands of being data-driven. Written by O’Reilly Radar’s experts on big data, this anthology describes: The broad industry changes heralded by the big data era What big data is, what it means to your business, and how to start solving data problems The software that makes up the Hadoop big data stack, and the major enterprise vendors’ Hadoop solutions The landscape of NoSQL databases and their relative merits How visualization plays an important part in data work

Big Data Science in Finance Irene Aldridge 2021-01-08 Explains the mathematics, theory, and methods of Big Data as applied to finance and investing. Data science has fundamentally changed Wall Street—applied mathematics and software code are increasingly driving finance and investment decision tools. Big Data Science in Finance examines the mathematics, theory, and practical use of the revolutionary techniques that are transforming the industry. Designed for mathematically-advanced students and discerning financial practitioners alike, this energizing book presents new, cutting-edge content based on world-class research taught in the leading Financial Mathematics and Engineering programs in the world. Marco Avellaneda, a leader in quantitative finance, and quantitative methodology author Irene Aldridge help readers harness the power of Big Data. Comprehensive in scope, this book offers in-depth instruction on how to separate signal from noise, how to deal with missing data values, and how to utilize Big Data techniques in decision-making. Key topics include data clustering, data storage optimization, Big Data dynamics, Monte Carlo methods and their applications in Big Data analysis, and more. This valuable book: Provides a complete account of Big Data that includes proofs, step-by-step applications, and code samples Explains the difference between Principal Component Analysis (PCA) and Singular Value Decomposition (SVD) Covers vital topics in the field in a clear, straightforward manner Compares, contrasts, and discusses Big Data and Small Data Includes Cornell University-tested educational materials such as lesson plans, end-of-chapter questions, and downloadable lecture slides Big Data Science in Finance: Mathematics and Applications is an important, up-to-date resource for students in economics, econometrics, finance, applied mathematics, industrial engineering, and business courses, and for investment managers, quantitative traders, risk and portfolio managers, and other financial practitioners.

Big Data in Passenger Forecasting in Airline Route Planning Akaki Maisaia 2018

Research Anthology on Big Data Analytics, Architectures, and Applications Information Resources Management Association 2022 Society is now completely driven by data with many industries relying on data to conduct business or basic functions within the organization. With the efficiencies that big data bring to all institutions, data is continuously being collected and analyzed. However, data sets may be too complex for traditional data-processing, and therefore, different strategies must evolve to solve the issue. The field of big data works as a valuable tool for many different industries. The Research Anthology on Big Data Analytics, Architectures, and Applications is a complete reference source on big data analytics that offers the latest, innovative architectures and frameworks and explores a variety of applications within various industries. Offering an international perspective, the applications discussed within this anthology feature global representation. Covering topics such as advertising curricula, driven supply chain, and smart cities, this research anthology is ideal for data scientists, data analysts, computer engineers, software engineers, technologists, government officials, managers, CEOs, professors, graduate students, researchers, and academicians.

Artificial Intelligence for Big Data Anand Deshpande 2018-05-22 Build next-generation Artificial Intelligence systems with Java Key Features Implement AI techniques to build smart applications using DeepLearning4j Perform big data analytics to derive quality insights using Spark MLlib Create self-learning systems using neural networks, NLP, and reinforcement learning Book Description In this age of big data, companies have larger amount of consumer data than ever before, far more than what the current technologies can ever hope to keep up with. However, Artificial Intelligence closes the gap by moving past human limitations in order to analyze data. With the help of Artificial Intelligence for big data, you will learn to use Machine Learning algorithms such as k-means, SVM, RBF, and regression to perform advanced data analysis. You will understand the current status of Machine and Deep Learning techniques to work on Genetic and Neuro-Fuzzy algorithms. In addition, you will explore how to develop Artificial Intelligence algorithms to learn from data, why they are necessary, and how they can help solve real-world problems. By the end of this book, you’ll have learned how to implement various Artificial Intelligence algorithms for your big data systems and integrate them into your product offerings such as reinforcement learning, natural language processing, image recognition, genetic algorithms, and fuzzy logic systems. What you will learn Manage Artificial Intelligence techniques for big data with Java Build smart systems to analyze data for enhanced customer experience Learn to use Artificial Intelligence frameworks for big data Understand complex problems with algorithms and Neuro-Fuzzy systems Design stratagems to leverage data using Machine Learning process Apply Deep Learning techniques to prepare data for modeling Construct models that learn from data using open source tools Analyze big data problems using scalable Machine Learning algorithms Who this book is for This book is for you if you are a data scientist, big data professional, or novice who has basic knowledge of big data and wish to get proficiency in Artificial Intelligence techniques for big data. Some competence in mathematics is an added advantage in the field of elementary linear algebra and calculus.

Seeing Cities Through Big Data Piyushmita (Vonu) Thakuria 2016-10-07 This book introduces the latest thinking on the use of Big Data in the context of urban systems, including research and insights on human behavior, urban dynamics, resource use, sustainability and spatial disparities, where it promises improved planning, management and governance in the urban sectors (e.g., transportation, energy, smart cities, crime, housing, urban and regional economies, public health, public engagement, urban governance and political systems), as well as Big Data’s utility in decision-making, and development of indicators to monitor economic and social activity, and for urban sustainability, transparency, livability, social inclusion, place-making, accessibility and resilience.

Foundations for Architecting Data Solutions Ted Malaska 2018-08-29 While many companies ponder implementation details such as distributed processing engines and algorithms for data analysis, this practical book takes a much wider view of big data development, starting with initial planning and moving diligently toward execution. Authors Ted Malaska and Jonathan Seidman guide you through the major components necessary to start, architect, and develop successful big data projects. Everyone from CIOs and COOs to lead architects and developers will explore a variety of big data architectures and applications, from massive data pipelines to web-scale applications. Each chapter addresses a piece of the software development life cycle and identifies patterns to maximize long-term success throughout the life of your project. Start the planning process by considering the key data project types Use guidelines to evaluate and select data management solutions Reduce risk related to technology, your team, and vague requirements Explore system interface design using APIs, REST, and pub/sub systems Choose the right distributed storage system for your big data system Plan and implement metadata collections for your data architecture Use data pipelines to ensure data integrity from source to final storage Evaluate the attributes of various engines for processing the data you collect

Big Data Fundamentals Thomas Erl 2015-12-29 “This text should be required reading for everyone in contemporary business.” --Peter Woodhull, CEO, Modus21 “The one book that clearly describes and links Big Data concepts to business utility.” --Dr. Christopher Starr, PhD “Simply, this is the best Big Data book on the market!” --Sam Rostam, Cascadian IT Group “...one of the most contemporary approaches I’ve seen to Big Data fundamentals...” --Joshua M. Davis, PhD The Definitive Plain-English Guide to Big Data for Business and Technology Professionals Big Data Fundamentals provides a pragmatic, no-nonsense introduction to Big Data. Best-selling IT author Thomas Erl and his team clearly explain key Big Data concepts, theory and terminology, as well as fundamental technologies and techniques. All coverage is supported with case study examples and numerous simple diagrams. The authors begin by explaining how Big Data can propel an organization forward by solving a spectrum of previously intractable business problems. Next, they demystify key analysis techniques and technologies and show how a Big Data solution environment can be built and integrated to offer competitive advantages. Discovering Big Data’s fundamental concepts and what makes it different from previous forms of data analysis and data science Understanding the business motivations and drivers behind Big Data adoption, from operational improvements through innovation Planning strategic, business-driven Big Data initiatives Addressing considerations such as data management, governance, and security Recognizing the 5 “V” characteristics of datasets in Big Data environments: volume, velocity, variety, veracity, and value Clarifying Big Data’s relationships with OLTP, OLAP, ETL, data warehouses, and data marts Working with Big Data in structured, unstructured, semi-structured, and metadata formats Increasing value by integrating Big Data resources with corporate performance monitoring Understanding how Big Data leverages distributed and parallel processing Using NoSQL and other technologies to meet Big Data’s distinct data processing requirements Leveraging statistical approaches of quantitative and qualitative analysis Applying computational analysis methods, including machine learning

Data Lake for Enterprises Tomcy John 2017-05-31 A practical guide to implementing your enterprise data lake using Lambda Architecture as the base About This Book Build a full-fledged data lake for your organization with popular big data technologies using the Lambda architecture as the base Delve into the big data technologies required to meet modern day business strategies A highly practical guide to implementing enterprise data lakes with lots of examples and real-world use-cases Who This Book Is For Java developers and architects who would like to implement a data lake for their enterprise will find this book useful. If you want to get hands-on experience with the Lambda Architecture and big data technologies by implementing a practical solution using these technologies, this book will also help you. What You Will Learn Build an enterprise-level data lake using the relevant big data technologies Understand the core of the Lambda architecture and how to apply it in an enterprise Learn the technical details around Sqoop and its functionalities Integrate Kafka with Hadoop components to acquire enterprise data Use flume with streaming technologies for stream-based processing Understand stream-based processing with reference to Apache Spark Streaming Incorporate Hadoop components and know the advantages they provide for enterprise data lakes Build fast, streaming, and high-performance applications using Elasticsearch Make your data ingestion process consistent across various data formats with configurability Process your data to derive intelligence using machine learning algorithms In Detail The term “Data Lake” has recently emerged as a prominent term in the big data industry. Data scientists can make use of it in deriving meaningful insights that can be used by businesses to redefine or transform the way they operate. Lambda architecture is also emerging as one of the very eminent patterns in the big data landscape, as it not only helps to derive useful information from historical data but also correlates real-time data to enable business to take critical decisions. This book tries to bring these two important aspects – data lake and lambda architecture—together. This book is divided into three main sections. The first introduces you to the concept of data lakes, the importance of data lakes in enterprises, and getting you up-to-speed with the Lambda architecture. The second section delves into the principal components of building a data lake using the Lambda architecture. It introduces you to popular big data technologies such as Apache Hadoop, Spark, Sqoop, Flume, and Elasticsearch. The third section is a highly practical demonstration of putting it all together, and shows you how an enterprise data lake can be implemented, along with several real-world use-cases. It also shows you how other peripheral components can be added to the lake to make it more efficient. By the end of this book, you will be able to choose the right big data technologies using the lambda architectural patterns to build your enterprise data lake. Style and approach The book takes a pragmatic approach, showing ways to leverage big data technologies and lambda architecture to build an enterprise-level data lake.

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