Practical Predictive Analytics And Decisioning Systems For Medicine Informatics Accuracy And Cost Effectiveness For Healthcare Administration And Delivery Including Medical Research

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Real-World Data Mining Dursun Delen 2014-12-16 Use the latest data mining best practices to enable timely, actionable, evidence-based decision making throughout your organization! Real-World Data Mining demystifies current best practices, showing how to use data mining to uncover hidden patterns and correlations, and leverage these to improve all aspects of business performance. Drawing on extensive experience as a researcher, practitioner, and instructor, Dr. Dursun Delen delivers an optimal balance of concepts, techniques and applications. Without compromising either simplicity or clarity, he provides enough technical depth to help readers truly understand how data mining technologies work. Coverage includes: processes, methods, techniques, tools, and metrics; the role and management of data; text and web mining; sentiment analysis; and Big Data integration. Throughout, Delen's conceptual coverage is complemented with application case studies (examples of both successes and failures), as well as simple, hands-on tutorials. Real-World Data Mining will be valuable to professionals on analytics teams; professionals seeking certification in the field; and undergraduate or graduate students in any analytics program: concentrations, certificate-based, or degree-based.

Prescriptive Analytics Dursun Delen 2019-06-28 Make Better Decisions, Leverage New Opportunities, and Automate Decisioning at Scale Prescriptive analytics is more directly linked to successful decision-making than any other form of business analytics. It can help you systematically sort through your choices to optimize decisions, respond to new opportunities and risks with precision, and continually reflect new information into your decisioning process. In Prescriptive Analytics, analytics expert Dr. Dursun Delen illuminates the field's state-of-the-art methods, offering holistic insight for both professionals and students. Delen's end-to-end, all-inclusive approach covers optimization, simulation, multi-criteria decision-making methods, inference- and heuristic-based decisioning, and more. Balancing theory and practice, he presents intuitive conceptual illustrations, realistic example problems, and real-world case studies–all designed to deliver knowledge you can use. Discover where prescriptive analytics fits and how it improves decision-making Identify optimal solutions for achieving an objective within real-world constraints Analyze complex systems via Monte-Carlo, discrete, and continuous simulations Apply powerful multi-criteria decision-making and mature expert systems and case-based reasoning Preview emerging techniques based on deep learning and cognitive computing

Big Data Analytics for Entrepreneurial Success Sedkaoui, Soraya 2018-11-09 In a resolutely practical and data-driven project universe, the digital age changed the way data is collected, stored, analyzed, visualized and protected, transforming business opportunities and strategies. It is important for today's organizations and entrepreneurs to implement a robust data strategy and industrialize a set of "data-driven" solutions to utilize big data analytics to its fullest potential. Big Data Analytics for Entrepreneurial Success provides emerging perspectives on the theoretical and practical aspects of data analysis tools and techniques within business applications. Featuring coverage on a broad range of topics such as algorithms, data collection, and machine learning, this publication provides concrete examples and case studies of successful uses of data-driven projects as well as the challenges and opportunities of generating value from data using analytics. It is ideally designed for entrepreneurs, researchers, business owners, managers, graduate students, academicians, software developers, and IT professionals seeking current research on the essential tools and technologies for organizing, analyzing, and benefiting from big data.

HEALTHCARE's OUT SICK - PREDICTING A CURE - Solutions that WORK !!!! Gary D. Miner 2019-01-04 The U.S. healthcare system is in "complete chaos-disarray." Medical costs have increased significantly over the past 6 years with 70% increase for deductibles and 24% or more for health insurance premiums. All the while, workers earnings have either not increased or if they did, the pay raises were for less than the increase in the cost of medical care. The situation is unsustainable and the public wants the system fixed. This book offers ways of fixing the problems in healthcare. HEALTHCARE's OUT SICK - PREDICTING A CURE - Solutions that WORK !!!! first defines the "healthcare in crisis" problem. Through real patient experiences, the book describes the difficulties of getting through the maze of complexity among the plethora of "silo providers" which make up the industry. The heart of the book provides readers with a comprehensive solution that can work, a disruption that is necessary to provide Americans the medical care they need without the US public and healthcare providers and payors going into bankruptcy, insolvency or closure. This book delves into digitized medicine, payor and provider reimbursement models, and value-based healthcare delivery. It also includes a philosophy or mode of thinking and operation for the solutions that are needed for diagnosis-effective, cost-effective, and time-efficient healthcare delivery, of which digitized medicine, value-based care, and payor reimbursement modes are just some of the factors. The authors propose that the real solution involves having the patient at the center of the issues and changing from an archaic gold standard way of thinking to a "Predictive Analytic thinking" where one gets at the real truth by doing "real science" that in the end becomes effective not only for the population but for the individual person. This all leads to real person-centered and person-directed medicine and healthcare delivery.

Emerging Methods in Predictive Analytics: Risk Management and Decision-Making Hsu, William H. 2014-01-31 Decision making tools are essential for the successful outcome of any organization. Recent advances in predictive analytics have aided in identifying particular points of leverage where critical decisions can be made. Emerging Methods in Predictive Analytics: Risk Management and Decision Making provides an interdisciplinary approach to predictive analytics; bringing together the fields of business, statistics, and information technology for effective decision making. Managers, business professionals, and decision makers in diverse fields will find the applications and cases presented in this text essential in providing new avenues for risk assessment, management, and predicting the future outcomes of their decisions.

Handbook of Statistical Analysis and Data Mining Applications Robert Nisbet 2017-11-09 Handbook of Statistical Analysis and Data Mining Applications, Second Edition, is a comprehensive professional reference book that guides business analysts, scientists, engineers and researchers, both academic and industrial, through all stages of data analysis, model building and implementation. The handbook helps users discern technical and business problems, understand the strengths and weaknesses of modern data mining algorithms and employ the right statistical methods for practical application. This book is an ideal reference for users who want to address massive and complex datasets with novel statistical approaches and be able to objectively evaluate analyses and solutions. It has clear, intuitive explanations of the principles and tools for solving problems using modern analytic techniques and discusses their application to real problems in ways accessible and beneficial to practitioners across several areas—from science and engineering, to medicine, academia and commerce. Includes input by practitioners for practitioners Includes tutorials in numerous fields of study that provide step-by-step instruction on how to use supplied tools to build models Contains practical advice from successful real-world implementations Brings together, in a single resource, all the information a beginner needs to understand the tools and issues in data mining to build successful data mining solutions Features clear, intuitive explanations of novel analytical tools and techniques, and their practical applications

Practical Data Analytics for Innovation in Medicine Gary D. Miner, PhD 2022-09-15 Practical Data Analytics for Innovation in Medicine: Building Real Predictive and Prescriptive Models in Personalized Healthcare and Medical Research Using AI, ML, and Related Technologies, 2nd Edition discusses the needs of healthcare and medicine in the 21st century and explains how data analytics play an important and revolutionary role on fulfilling them. With healthcare effectiveness and economics facing growing challenges, there is a rapidly emerging movement to fortify medical treatment and administration by tapping the predictive power of big data, and it has shown solid results: predictive analytics bolster patient care, reduce cost, and deliver greater efficiencies across a wide range of operational functions. The first part of the book brings a historical perspective and the issues of concern for healthcare delivery currently, highlighting the importance of using predictive analytics to help solve health crisis such as the COVID-19 pandemic. The second part provides access to practical step-by-step tutorials and case studies online, available in the book's companion website, to help reader to apply the knowledge gained through exercises based on real-world examples of successful predictive and prescriptive tools and systems. The final part focuses on specific technical operations related to quality, cost-effective medical and nursing care delivery and administration brought by practical predictive analytics; in addition, it discusses future developments on decisioning platforms that allow rapid/instant decisions on medical care and delivery. The book is a valuable resource for researchers, practitioners, healthcare industry workers, policy makers, and members of medical and biomedical fields who are interested to learn about recent developments on data analytics applied to healthcare and medicine. Brings a historical perspective in medical care to discuss both the current status of health care delivery worldwide and the importance of using modern predictive analytics to help solve the health care crisis Provides online tutorials on several predictive analytics systems to help readers to apply their knowledge on today's medical issues and basic research Teaches how to develop effective predictive analytic research and to create decisioning/prescriptive analytic systems to make medical decisions quicker and more accurate

Data Driven Decision Making using Analytics Parul Gandhi 2021-12-21 This book aims to explain Data Analytics towards decision making in terms of models and algorithms, theoretical concepts, applications, experiments in relevant domains or focused on specific issues. It explores the concepts of database technology, machine learning, knowledge-based system, high performance computing, information retrieval, finding patterns hidden in large datasets and data visualization. Also, it presents various paradigms including pattern mining, clustering, classification, and data analysis. Overall aim is to provide technical solutions in the field of data analytics and data mining. Features: Covers descriptive statistics with respect to predictive analytics and business analytics. Discusses different data analytics platforms for real-time applications. Explain SMART business models. Includes algorithms in data sciences alongside automated methods and models. Explores varied challenges encountered by researchers and businesses in the realm of real-time analytics. This book aims at researchers and graduate students in data analytics, data sciences, data mining, and signal processing.

Handbook of Research on Optimizing Healthcare Management Techniques Wickramasinghe, Nilmini 2019-12-27 Healthcare is noted for using leading-edge technologies and embracing new scientific discoveries to enable better cures for diseases and better means to enable early detection of most life-threatening diseases. However, the healthcare industry globally, and in the US specifically, has been extremely slow to adopt technologies that focus on better practice management and administrative needs. Presently, healthcare is grappling with many challenges both nationally and globally, including escalating costs, a move to a preventative care environment, and a technologically savvy patient with high expectations. The Handbook of Research on Optimizing Healthcare Management Techniques is a pivotal reference source that provides an extensive and rich compilation of various ICT initiatives and examines the role that ICT plays and will play in the future of healthcare delivery. It represents ways in which healthcare delivery can be made superior and the healthcare industry can begin to address the major challenges it faces in the 21st century so that ultimately the most important person in the web of healthcare players, the patient, can be confident about receiving high-quality, cost-effective healthcare. While highlighting topics such as e-health, medical informatics, and patient value, this publication explores the role of supportive technologies as well as the methods of focused, patient-centric outcomes. This book is ideally designed for doctors, nurses, hospital administrators, medical staff, hospital directors, medical boards, IT consultants, health practitioners, academicians, researchers, and students.

Proceedings of Data Analytics and Management Deepak Gupta (Ph.D.) 2022 This book includes original unpublished contributions presented at the International Conference on Data Analytics and Management (ICDAM 2021), held at Jan Wyzykowski University, Poland, during June 2021. The book covers the topics in data analytics, data management, big data, computational intelligence, and communication networks. The book presents innovative work by leading academics, researchers, and experts from industry which is useful for young researchers and students.

Data Science for Business Foster Provost 2013-07-27 Written by renowned data science experts Foster Provost and Tom Fawcett, Data Science for Business introduces the fundamental principles of data science, and walks you through the "data-analytic thinking" necessary for extracting useful knowledge and business value from the data you collect. This guide also helps you understand the many data-mining techniques in use today. Based on an MBA course Provost has taught at New York University over the past ten years, Data Science for Business provides examples of real-world business problems to illustrate these principles. You'll not only learn how to improve communication between business stakeholders and data scientists, but also how participate intelligently in your company's data science projects. You'll also discover how to think data-analytically, and fully appreciate how data science methods can support business decision-making. Understand how data science fits in your organization—and how you can use it for competitive advantage Treat data as a business asset that requires careful investment if you're to gain real value Approach business problems data-analytically, using the data-mining process to gather good data in the most appropriate way Learn general concepts for actually extracting knowledge from data Apply data science principles when interviewing data science job candidates

Digital Decisioning James Taylor 2019-10-23 Based on dozens of successful projects around the word, this book lays out the basic elements of the approach in a practical how-to guide. Aimed at managers, not technical teams, this book will focus your efforts to apply machine learning, artificial intelligence and predictive analytics.

It's All Analytics! Scott Burk 2020

High-Performance Big-Data Analytics Pethuru Raj 2015-10-16 This book presents a detailed review of high-performance computing infrastructures for next-generation big data and fast data analytics. Features: includes case studies and learning activities throughout the book and self-study exercises in every chapter; presents detailed case studies on social media analytics for intelligent businesses and on big data analytics (BDA) in the healthcare sector; describes the network infrastructure requirements for effective transfer of big data, and the storage infrastructure requirements of applications which generate big data; examines real-time analytics solutions; introduces in-database processing and in-memory analytics techniques for data mining; discusses the use of mainframes for handling real-time big data and the latest types of data management systems for BDA; provides information on the use of cluster, grid and cloud computing systems for BDA; reviews the peer-to-peer techniques and tools and the common information visualization techniques, used in BDA.

Soft Computing Applications Valentina Emilia Balas 2017-08-31 These two volumes constitute the Proceedings of the 7th International Workshop on Soft Computing Applications (SOFA 2016), held on 24–26 August 2016 in Arad, Romania. This edition was organized by Aurel Vlaicu University of Arad, Romania, University of Belgrade, Serbia, in conjunction with the Institute of Computer Science, Iasi Branch of the Romanian Academy, IEEE Romanian Section, Romanian Society of Control Engineering and Technical Informatics (SRAIT) - Arad Section, General Association of Engineers in Romania - Arad Section, and BTM Resources Arad. The soft computing concept was introduced by Lotfi Zadeh in 1991 and serves to highli ght the emergence of computing methodologies in which the accent is on exploiting the tolerance for imprecision and uncertainty to achieve tractability, robustness and lower costs. Soft computing facilitates the combined use of fuzzy logic, neurocomputing, evolutionary computing and probabilistic computing, leading to the concept of hybrid intelligent systems. The rapid emergence of new tools and applications calls for a synergy of scientific and technological disciplines in order to reveal the great potential of soft computing in all domains. The conference papers included in these proceedings, published post-conference, were grouped into the following areas of research: • Methods and Applications in Electrical Engineering • Knowledge-Based Technologies for Web Applications, Cloud Computing, Security Algorithms and Computer Networks • Biomedical Applications • Image, Text and Signal Processing • Machine Learning

and Applications • &nb sp; Business Process Management • Fuzzy Applications, Theory and Fuzzy Control • Computational Intelligence in Education • Soft Computing & Fuzzy Logic i n Biometrics (SCFLB) • Soft Computing Algorithms Applied in Economy, Industry and Communication Technology • Modelling and Applications in Textiles The book helps to disseminate advances in selected active research directions in the field of soft computing, along with current issues and applications of related topics. As such, it provides valuable information for professors, researchers and graduate students in the area of soft computing techniques and applications.

It's All Analytics - Part II Scott Burk 2021-09-28 Up to 70% and even more of corporate Analytics Efforts fail!!! Even after these corporations have made very large investments, in time, talent, and money, in developing what they thought were good data and analytics programs. Why? Because the executives and decision makers and the entire analytics team have not considered the most important aspect of making these analytics efforts successful. In this Book II of "It's All Analytics!" series, we describe two primary things: 1) What this "most important aspect" consists of, and 2) How to get this "most important aspect" at the center of the analytics effort and thus make your analytics program successful. This Book II in the series is divided into three main parts: Part I, Organizational Design for Success, discusses .... The need for a complete company / organizational Alignment of the entire company and its analytics team for making its analytics successful. This means attention to the culture – the company culture culture!!! To be successful, the CEO's and Decision Makers of a company / organization must be fully cognizant of the cultural focus on 'establishing a center of excellence in analytics'. Simply, "culture – company culture" is the most important aspect of a successful analytics program. The focus must be on innovation, as this is needed by the analytics team to develop successful algorithms that will lead to greater company efficiency and increased profits. Part II, Data Design for Success, discusses ..... Data is the cornerstone of success with analytics. You can have the best analytics algorithms and models available, but if you do not have good data, efforts will at best be mediocre if not a complete failure. This Part II also goes further into data with descriptions of things like Volatile Data Memory Storage and Non-Volatile Data Memory Storage, in addition to things like data structures and data formats, plus considering things like Cluster Computing, Data Swamps, Muddy Data, Data Marts, Enterprise Data Warehouse, Data Reservoirs, and Analytic Sandboxes, and additionally Data Virtualization, Curated Data, Purchased Data, Nascent & Future Data, Supplemental Data, Meaningful Data, GIS (Geographic Information Systems) & Geo Analytics Data, Graph Databases, and Time Series Databases. Part II also considers Data Governance including Data Integrity, Data Security, Data Consistency, Data Confidence, Data Leakage, Data Distribution, and Data Literacy. Part III, Analytics Technology Design for Success, discusses .... Analytics Maturity and aspects of this maturity, like Exploratory Data Analysis, Data Preparation, Feature Engineering, Building Models, Model Evaluation, Model Selection, and Model Deployment. Part III also goes into the nuts and bolts of modern predictive analytics, discussing such terms as AI = Artificial Intelligence, Machine Learning, Deep Learning, and the more traditional aspects of analytics that feed into modern analytics like Statistics, Forecasting, Optimization, and Simulation. Part III also goes into how to Communicate and Act upon Analytics, which includes building a successful Analytics Culture within your company / organization. All-in-all, if your company or organization needs to be successful using analytics, this book will give you the basics of what you need to know to make it happen.

Machine Learning with Health Care Perspective Vishal Jain 2020-03-09 This unique book introduces a variety of techniques designed to represent, enhance and empower multi-disciplinary and multi-institutional machine learning research in healthcare informatics. Providing a unique compendium of current and emerging machine learning paradigms for healthcare informatics, it reflects the diversity, complexity, and the depth and breadth of this multi-disciplinary area. Further, it describes techniques for applying machine learning within organizations and explains how to evaluate the efficacy, suitability, and efficiency of such applications. Featuring illustrative case studies, including how chronic disease is being redefined through patient-led data learning, the book offers a guided tour of machine learning algorithms, architecture design, and applications of learning in healthcare challenges.

Applying Predictive Analytics Within the Service Sector Sahu, Rajendra 2017-02-07 Value creation is a prime concern for any contemporary business. This can be accomplished through the incorporation of various techniques and processes, such as the integration of analytics to improve business functions. Applying Predictive Analytics Within the Service Sector is a pivotal reference source for the latest innovative perspectives on the incorporation of analysis techniques to enhance business performance. Examining a wide range of relevant topics, such as alternative clustering, recommender systems, and social media tools, this book is ideally designed for researchers, academics, students, professionals, and practitioners seeking scholarly material on business improvement in the service industry.

High Performance Computing for Computational Science – VECPAR 2018 Hermes Senger 2019-03-25 This book constitutes the thoroughly refereed post-conference proceedings of the 13th International Conference on High Performance Computing in Computational Science, VECPAR 2018, held in São Pedro, Brazil, in September 2018. The 17 full papers and one short paper included in this book were carefully reviewed and selected from 32 submissions presented at the conference. The papers cover the following topics: heterogeneous systems, shared memory systems and GPUs, and techniques including domain decomposition, scheduling and load balancing, with a strong focus on computational science applications.

The Executive's Guide to AI and Analytics Scott Burk 2022-06-07 The Problem? Companies are failing to deliver on AI and analytics with over half stating they are "not yet treating data as a business asset." Over half admit that they are not competing on data and analytics. Seven out of 10 companies in a 2020 MIT study reported minimal or no impact from AI so far. Among the 90% of companies that have made some investment in AI, fewer than 2 out of 5 (40%) report business gains from AI in the past three years. And only about 25% of organizations have actually forged this data-driven culture. Is investment lacking? No. Companies now are spending more than ever in data, analytics, and AI technologies. Is it a lack of technology? No. There are fascinating breakthroughs occurring on all fronts with image, voice, and streaming pattern recognition on the forefront. Is it a lack of technical talent? Not really. While some studies cite that we need to train more data scientists, developers, and related professionals, the curve of demand by supply is dampening. Is it a lack of creating an executable strategic plan? Yes. While there has been a lot of strategic wishing, organizations lack meaningful strategic plans. Specifically, the development of executable strategies and the leadership to see these strategies brought to fruition. This is the problem. Lack of execution and lack of incorporating key components that align and enable execution of the business strategy to delivery is killing AI and analytics programs. Scott Burk and Gary D. Miner have written this book for executives at all levels who are charged with executing on analytics that need to address this issue. The book provides unique insights into repairing the gaps that programs need to fill to provide value from analytics programs. It complements their three-part series, It's All Analytics! by focusing on leadership decisions that augment data literacy, organizational architecture, and AI case studies.

Avatar-Based Control, Estimation, Communications, and Development of Neuron Multi-Functional Technology Platforms Mkrttchian, Vardan 2019-12-27 Competition in today's global market offers strong motivation for the development of sophisticated tools within computer science. The neuron multi-functional technology platform is a developing field of study that regards the various interactive approaches that can be applied within this subject matter. As advancing technologies continue to emerge, managers and researchers need a compilation of research that discusses the advancements and specific implementations of these intelligent approaches with this platform. Avatar-Based Control, Estimation, Communications, and Development of Neuron Multi-Functional Technology Platforms is a pivotal reference source that provides vital research on the application of artificial and natural approaches towards neuron-based programs. While highlighting topics such as natural intelligence, neurolinguistics, and smart data storage, this publication presents techniques, case studies, and methodologies that combine the use of intelligent artificial and natural approaches with optimization techniques for facing problems and combines many types of hardware and software with a variety of communication technologies to enable the development of innovative applications. This book is ideally designed for researchers, practitioners, scientists, field experts, professors, and students seeking current research on the optimization of avatar-based advancements in multifaceted technology systems.

Analytics in Healthcare and the Life Sciences Thomas H. Davenport 2013-11-04 Make healthcare analytics work: leverage its powerful opportunities for improving outcomes, cost, and efficiency.This book gives you thepractical frameworks, strategies, tactics, and case studies you need to go beyond talk to action. The contributing healthcare analytics innovators survey the field's current state, present start-to-finish guidance for planning and implementation, and help decision-makers prepare for tomorrow's advances. They present in-depth case studies revealing how leading organizations have organized and executed analytic strategies that work, and fully cover the primary applications of analytics in all three sectors of the healthcare ecosystem: Provider, Payer, and Life Sciences. Co-published with the International Institute for Analytics (IIA), this book features the combined expertise of IIA's team of leading health analytics practitioners and researchers. Each chapter is written by a member of the IIA faculty, and bridges the latest research findings with proven best practices. This book will be valuable to professionals and decision-makers throughout the healthcare ecosystem, including provider organization clinicians and managers; life sciences researchers and practitioners; and informaticists, actuaries, and managers at payer organizations. It will also be valuable in diverse analytics, operations, and IT courses in business, engineering, and healthcare certificate programs.

DSS 2.0 - Supporting Decision Making With New Technologies G.E. Phillips-Wren 2014-05-22 Advances in technology have resulted in new and advanced methods to support decision-making. For example, artificial intelligence has enabled people to make better decisions through the use of Intelligent Decision Support Systems (DSS). Emerging research in DSS demonstrates that decision makers can operate in a more timely manner using real-time data, more accurately due to data mining and 'big data' methods, more strategically by considering a greater number of factors, more precisely and inclusively due to the availability of social networking data, and with a wider media reach with video and audio technology. _x000D_ _x000D_This book presents the proceedings of the IFIP TC8/Working Group 8.3 conference held at the Université Pierre et Marie Curie in Paris, France, in June 2014. Throughout its history the conference has aimed to present the latest innovations and achievements in Decision Support Systems. This year the conference looks to the next generation with the theme of new technologies to enable DSS2.0. The topics covered include theoretical, empirical and design science research; case-based approaches in decision support systems; decision models in the real-world; healthcare information technology; decision making theory; knowledge management; knowledge and resource discovery; business intelligence; group decision support systems; collaborative decision making; analytics and 'big data'; rich language for decision support; multimedia tools for DSS; Web 2.0 systems in decision support; context-based technologies for decision making; intelligent systems and technologies in decision support; organizational decision support; research methods in DSS 2.0; mobile DSS; competing on analytics; and social media analytics._x000D_ _x000D_The book will be of interest to all those who develop or use Decision Support Systems. The variety of methods and applications illustrated by this international group of carefully reviewed papers should provide ideas and directions for future researchers and practitioners alike.

Management Decision-Making, Big Data and Analytics Simone Gressel 2020-10-12 Accessible and concise, this exciting new textbook examines data analytics from a managerial and organizational perspective and looks at how they can help managers become more effective decision-makers. The book successfully combines theory with practical application, featuring case studies, examples and a 'critical incidents' feature that make these topics engaging and relevant for students of business and management. The book features chapters on cutting-edge topics, including: • Big data • Analytics • Managing emerging technologies and decision-making • Managing the ethics, security, privacy and legal aspects of data-driven decision-making The book is accompanied by an Instructor's Manual, PowerPoint slides and access to journal articles. Suitable for management students studying business analytics and decision-making at undergraduate, postgraduate and MBA levels.

Practical Predictive Analytics Ralph Winters 2017-06-30 Make sense of your data and predict the unpredictable About This Book A unique book that centers around develop six key practical skills needed to develop and implement predictive analytics Apply the principles and techniques of predictive analytics to effectively interpret big data Solve real-world analytical problems with the help of practical case studies and real-world scenarios taken from the world of healthcare, marketing, and other business domains Who This Book Is For This book is for those with a mathematical/statistics background who wish to understand the concepts, techniques, and implementation of predictive analytics to resolve complex analytical issues. Basic familiarity with a programming language of R is expected. What You Will Learn Master the core predictive analytics algorithm which are used today in business Learn to implement the six steps for a successful analytics project Classify the right algorithm for your requirements Use and apply predictive analytics to research problems in healthcare Implement predictive analytics to retain and acquire your customers Use text mining to understand unstructured data Develop models on your own PC or in Spark/Hadoop environments Implement predictive analytics products for customers In Detail This is the go-to book for anyone interested in the steps needed to develop predictive analytics solutions with examples from the world of marketing, healthcare, and retail. We'll get started with a brief history of predictive analytics and learn about different roles and functions people play within a predictive analytics project. Then, we will learn about various ways of installing R along with their pros and cons, combined with a step-by-step installation of RStudio, and a description of the best practices for organizing your projects. On completing the installation, we will begin to acquire the skills necessary to input, clean, and prepare your data for modeling. We will learn the six specific steps needed to implement and successfully deploy a predictive model starting from asking the right questions through model development and ending with deploying your predictive model into production. We will learn why collaboration is important and how agile iterative modeling cycles can increase your chances of developing and deploying the best successful model. We will continue your journey in the cloud by extending your skill set by learning about Databricks and SparkR, which allow you to develop predictive models on vast gigabytes of data. Style and Approach This book takes a practical hands-on approach wherein the algorithms will be explained with the help of real-world use cases. It is written in a well-researched academic style which is a great mix of theoretical and practical information. Code examples are supplied for both theoretical concepts as well as for the case studies. Key references and summaries will be provided at the end of each chapter so that you can explore those topics on their own.

Handbook of Statistical Analysis and Data Mining Applications Robert Nisbet 2009 This comprehensive professional reference book for scientists, engineers, and researchers brings together in a single resource all the information a beginner will need to rapidly learn how to conduct data mining and the statistical analysis required to interpret the data once mined. A glossary of data mining terms provided in the appendix.

Practical Predictive Analytics and Decisioning Systems for Medicine Linda Miner 2014-09-27 With the advent of electronic medical records years ago and the increasing capabilities of computers, our healthcare systems are sitting on growing mountains of data. Not only does the data grow from patient volume but the type of data we store is also growing exponentially. Practical Predictive Analytics and Decisioning Systems for Medicine provides research tools to analyze these large amounts of data and addresses some of the most pressing issues and challenges where data integrity is compromised: patient safety, patient communication, and patient information. Through the use of predictive analytic models and applications, this book is an invaluable resource to predict more accurate outcomes to help improve quality care in the healthcare and medical industries in the most cost-efficient manner. Practical Predictive Analytics and Decisioning Systems for Medicine provides the basics of predictive analytics for those new to the area and focuses on general philosophy and activities in the healthcare and

medical system. It explains why predictive models are important, and how they can be applied to the predictive analysis process in order to solve real industry problems. Researchers need this valuable resource to improve data analysis skills and make more accurate and cost-effective decisions. Includes models and applications of predictive analytics why they are important and how they can be used in healthcare and medical research Provides real world step-by-step tutorials to help beginners understand how the predictive analytic processes works and to successfully do the computations Demonstrates methods to help sort through data to make better observations and allow you to make better predictions

Practical Text Mining and Statistical Analysis for Non-structured Text Data Applications Gary Miner 2012-01-25 Practical Text Mining and Statistical Analysis for Non-structured Text Data Applications brings together all the information, tools and methods a professional will need to efficiently use text mining applications and statistical analysis. Winner of a 2012 PROSE Award in Computing and Information Sciences from the Association of American Publishers, this book presents a comprehensive how-to reference that shows the user how to conduct text mining and statistically analyze results. In addition to providing an in-depth examination of core text mining and link detection tools, methods and operations, the book examines advanced preprocessing techniques, knowledge representation considerations, and visualization approaches. Finally, the book explores current real-world, mission-critical applications of text mining and link detection using real world example tutorials in such varied fields as corporate, finance, business intelligence, genomics research, and counterterrorism activities. The world contains an unimaginably vast amount of digital information which is getting ever vaster ever more rapidly. This makes it possible to do many things that previously could not be done: spot business trends, prevent diseases, combat crime and so on. Managed well, the textual data can be used to unlock new sources of economic value, provide fresh insights into science and hold governments to account. As the Internet expands and our natural capacity to process the unstructured text that it contains diminishes, the value of text mining for information retrieval and search will increase dramatically. Extensive case studies, most in a tutorial format, allow the reader to 'click through' the example using a software program, thus learning to conduct text mining analyses in the most rapid manner of learning possible Numerous examples, tutorials, power points and datasets available via companion website on Elsevierdirect.com Glossary of text mining terms provided in the appendix

Business Analytics with Management Science Models and Methods Arben Asllani 2014-11-17 Master decision modeling and analytics through realistic examples, intuitive explanations, and tested Excel templates. Business Analytics with Management Science has been designed to help students, practitioners and managers use business analytics to improve decision-making systems. Unlike previous books, it emphasizes the application of practical management science techniques in business analytics. Drawing on 20+ years of teaching and consulting experience, Dr. Arben Asllani introduces decision analytics through realistic examples and intuitive explanations – not complex formulae and theoretical definitions. Throughout, Asllani helps practitioners focus more on the crucial input-output aspects of decision making – and less upon internal model complexities that can usually be "delegated" to software.

Modeling Count Data Joseph M. Hilbe 2014-07-21 "This entry-level text offers clear and concise guidelines on how to select, construct, interpret, and evaluate count data. Written for researchers with little or no background in advanced statistics, the book presents treatments of all major models using numerous tables, insets, and detailed modeling suggestions. It begins by demonstrating the fundamentals of linear regression and works up to an analysis of the Poisson and negative binomial models, and to the problem of overdispersion. Examples in Stata, R, and SAS code enable readers to adapt models for their own purposes, making the text an ideal resource for researchers working in public health, ecology, econometrics, transportation, and other related fields"--

Health Informatics Meets EHealth D. Hayn 2017-05-12 Ineffective discharge management can jeopardize the successful completion of hospital treatment; but a well managed transition from hospital care to care at home depends on the efficient exchange of information with out-patient healthcare providers and professionals. This is just one way in which ICT can support healthcare and provide tools which help health professions to identify and communicate relevant data. Such tools will be increasingly important in future healthcare systems, and indeed a Europe-wide ICT infrastructure for information and data exchange may do much to revolutionize the quality of healthcare. It is therefore essential that infrastructures build on well-established standards such as Integrating the Healthcare Enterprise (IHE), even if this initially takes longer to implement. This book presents the proceedings of the annual Health Informatics meets eHealth conference, held in Vienna, Austria, in May 2017. The special topic chosen for eHealth2017 is Digital Insight – Information-Driven Health & Care, and the conference addressed the increasingly international focus of eHealth and the importance of cross-border health ICT. The papers presented here cover many eHealth topics, from maternity records to rehabilitation and from staff training to information exchange. Future ICT systems will inevitably involve machine learning and predictive analytics in order to provide actionable information to health professionals and support preventive healthcare concepts, and this book provides an insight into current research in health informatics and eHealth, addressing many issues central to the future of health and care. The book will be of interest to all healthcare researchers and practitioners.

Handbook of Research on Cloud Infrastructures for Big Data Analytics Raj, Pethuru 2014-03-31 Clouds are being positioned as the next-generation consolidated, centralized, yet federated IT infrastructure for hosting all kinds of IT platforms and for deploying, maintaining, and managing a wider variety of personal, as well as professional applications and services. Handbook of Research on Cloud Infrastructures for Big Data Analytics focuses exclusively on the topic of cloud-sponsored big data analytics for creating flexible and futuristic organizations. This book helps researchers and practitioners, as well as business entrepreneurs, to make informed decisions and consider appropriate action to simplify and streamline the arduous journey towards smarter enterprises.

Decision Management Systems James Taylor 2011-10-13 "A very rich book sprinkled with real-life examples as well as battle-tested advice." —Pierre Haren, VP ILOG, IBM "James does a thorough job of explaining Decision Management Systems as enablers of a formidable business transformation." —Deepak Advani, Vice President, Business Analytics Products and SPSS, IBM Build Systems That Work Actively to Help You Maximize Growth and Profits Most companies rely on operational systems that are largely passive. But what if you could make your systems active participants in optimizing your business? What if your systems could act intelligently on their own? Learn, not just report? Empower users to take action instead of simply escalating their problems? Evolve without massive IT investments? Decision Management Systems can do all that and more. In this book, the field's leading expert demonstrates how to use them to drive unprecedented levels of business value. James Taylor shows how to integrate operational and analytic technologies to create systems that are more agile, more analytic, and more adaptive. Through actual case studies, you'll learn how to combine technologies such as predictive analytics, optimization, and business rules—improving customer service, reducing fraud, managing risk, increasing agility, and driving growth. Both a practical how-to guide and a framework for planning, Decision Management Systems focuses on mainstream business challenges. Coverage includes Understanding how Decision Management Systems can transform your business Planning your systems "with the decision in mind" Identifying, modeling, and prioritizing the decisions you need to optimize Designing and implementing robust decision services Monitoring your ongoing decision-making and learning how to improve it Proven enablers of effective Decision Management Systems: people, process, and technology Identifying and overcoming obstacles that can derail your Decision Management Systems initiative

Predictive Analytics Dursun Delen 2020-10-30 In Predictive Analytics: Data Mining, Machine Learning and Data Science for Practitioners, Dr. Dursun Delen illuminates state-of-the-art best practices for predictive analytics for students. Using predictive analytics techniques, students can uncover hidden patterns and correlations in their data, and leverage this insight to improve a wide range of business decisions. Delen's holistic approach covers all this, and more: Data mining processes, methods, and techniques The role and management of data Predictive

analytics tools and metrics Techniques for text and web mining, and for sentiment analysis Integration with cutting-edge Big Data approaches Throughout, Delen promotes understanding by presenting numerous conceptual illustrations, motivational success stories, failed projects that teach important lessons, and simple, hands-on tutorials that set this guide apart from competitors.

Getting Started with Business Analytics David Roi Hardoon 2013-03-26 Assuming no prior knowledge or technical skills, Getting Started with Business Analytics: Insightful Decision-Making explores the contents, capabilities, and applications of business analytics. It bridges the worlds of business and statistics and describes business analytics from a non-commercial standpoint. The authors demystify the main concepts and terminologies and give many examples of real-world applications. The first part of the book introduces business data and recent technologies that have promoted fact-based decision-making. The authors look at how business intelligence differs from business analytics. They also discuss the main components of a business analytics application and the various requirements for integrating business with analytics. The second part presents the technologies underlying business analytics: data mining and data analytics. The book helps you understand the key concepts and ideas behind data mining and shows how data mining has expanded into data analytics when considering new types of data such as network and text data. The third part explores business analytics in depth, covering customer, social, and operational analytics. Each chapter in this part incorporates hands-on projects based on publicly available data. Helping you make sound decisions based on hard data, this self-contained guide provides an integrated framework for data mining in business analytics. It takes you on a journey through this data-rich world, showing you how to deploy business analytics solutions in your organization.

International Conference on Innovative Computing and Communications Ashish Khanna 2021-08-31 This book includes high-quality research papers presented at the Fourth International Conference on Innovative Computing and Communication (ICICC 2021), which is held at the Shaheed Sukhdev College of Business Studies, University of Delhi, Delhi, India, on February 20–21, 2021. Introducing the innovative works of scientists, professors, research scholars, students and industrial experts in the field of computing and communication, the book promotes the transformation of fundamental research into institutional and industrialized research and the conversion of applied exploration into real-time applications.

Decision Management Systems James Taylor 2011-10-13 "A very rich book sprinkled with real-life examples as well as battle-tested advice." —Pierre Haren, VP ILOG, IBM "James does a thorough job of explaining Decision Management Systems as enablers of a formidable business transformation." —Deepak Advani, Vice President, Business Analytics Products and SPSS, IBM Build Systems That Work Actively to Help You Maximize Growth and Profits Most companies rely on operational systems that are largely passive. But what if you could make your systems active participants in optimizing your business? What if your systems could act intelligently on their own? Learn, not just report? Empower users to take action instead of simply escalating their problems? Evolve without massive IT investments? Decision Management Systems can do all that and more. In this book, the field's leading expert demonstrates how to use them to drive unprecedented levels of business value. James Taylor shows how to integrate operational and analytic technologies to create systems that are more agile, more analytic, and more adaptive. Through actual case studies, you'll learn how to combine technologies such as predictive analytics, optimization, and business rules—improving customer service, reducing fraud, managing risk, increasing agility, and driving growth. Both a practical how-to guide and a framework for planning, Decision Management Systems focuses on mainstream business challenges. Coverage includes Understanding how Decision Management Systems can transform your business Planning your systems "with the decision in mind" Identifying, modeling, and prioritizing the decisions you need to optimize Designing and implementing robust decision services Monitoring your ongoing decision-making and learning how to improve it Proven enablers of effective Decision Management Systems: people, process, and technology Identifying and overcoming obstacles that can derail your Decision Management Systems initiative

HEALTHCARE's OUT SICK - PREDICTING A CURE - Solutions that WORK !!!! Gary D. Miner 2019-01-04 The U.S. healthcare system is in "complete chaos-disarray." Medical costs have increased significantly over the past 6 years with 70% increase for deductibles and 24% or more for health insurance premiums. All the while, workers earnings have either not increased or if they did, the pay raises were for less than the increase in the cost of medical care. The situation is unsustainable and the public wants the system fixed. This book offers ways of fixing the problems in healthcare. HEALTHCARE's OUT SICK - PREDICTING A CURE - Solutions that WORK !!!! first defines the "healthcare in crisis" problem. Through real patient experiences, the book describes the difficulties of getting through the maze of complexity among the plethora of "silo providers" which make up the industry. The heart of the book provides readers with a comprehensive solution that can work, a disruption that is necessary to provide Americans the medical care they need without the US public and healthcare providers and payors going into bankruptcy, insolvency or closure. This book delves into digitized medicine, payor and provider reimbursement models, and value-based healthcare delivery. It also includes a philosophy or mode of thinking and operation for the solutions that are needed for diagnosis-effective, cost-effective, and time-efficient healthcare delivery, of which digitized medicine, value-based care, and payor reimbursement modes are just some of the factors. The authors propose that the real solution involves having the patient at the center of the issues and changing from an archaic gold standard way of thinking to a "Predictive Analytic thinking" where one gets at the real truth by doing "real science" that in the end becomes effective not only for the population but for the individual person. This all leads to real person-centered and person-directed medicine and healthcare delivery.

It's All Analytics! Scott Burk 2020-07-02 It's All Analytics! The Foundations of AI, Big Data and Data Science Landscape for Professionals in Healthcare, Business, and Government (978-0-367-35968-3, 325690) Professionals are challenged each day by a changing landscape of technology and terminology. In recent history, especially in the last 25 years, there has been an explosion of terms and methods that automate and improve decision-making and operations. One term, "analytics," is an overarching description of a compilation of methodologies. But AI (artificial intelligence), statistics, decision science, and optimization, which have been around for decades, have resurged. Also, things like business intelligence, online analytical processing (OLAP) and many, many more have been born or reborn. How is someone to make sense of all this methodology and terminology? This book, the first in a series of three, provides a look at the foundations of artificial intelligence and analytics and why readers need an unbiased understanding of the subject. The authors include the basics such as algorithms, mental concepts, models, and paradigms in addition to the benefits of machine learning. The book also includes a chapter on data and the various forms of data. The authors wrap up this book with a look at the next frontiers such as applications and designing your environment for success, which segue into the topics of the next two books in the series.

Real-World Evidence in the Pharmaceutical Landscape Sunil Dravida 2021-12-14 In Real-World Evidence in the Pharmaceutical Landscape, life science industry experts Sunil Dravida and his co-authors have developed the first comprehensive overview of its kind on Real-World Data (RWD) in the pharmaceutical industry. The authors examine the challenges and opportunities in applying real-world data along the pharmaceutical continuum, from clinical development to medical affairs, health economics and outcomes, and marketing. They address the difficulties identifying the suitable data sources, ensuring compliance with privacy, security and regulatory requirements, and the big job of translating data into Real-World Evidence (RWE) to generate meaningful insights that can improve decision making by stakeholders and measurable outcomes that can enhance people's health and well-being. This book is a must-read for those in the pharmaceutical industry involved with RWD, which includes just about every role, as healthcare is now dominated by the need for high-quality data that can enable better decision-making. This book is especially critical for those designing and leading RWD Centers of Excellence in pharmaceutical companies and the service providers supporting the RWD ecosystem.