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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Practical Guide to Logistic Regression Joseph M. Hilbe 2016-04-05 Practical Guide to Logistic Regression covers the key points of the basic logistic regression model and illustrates how to use it properly to model a binary response variable. This powerful methodology can be used to analyze data from various fields, including medical and health outcomes research, business analytics and data science, ecology, fisheries, astronomy, transportation, insurance, economics, recreation, and sports. By harnessing the capabilities of the logistic model, analysts can better understand their data, make appropriate predictions and classifications, and determine the odds of one value of a predictor compared to another. Drawing on his many years of teaching logistic regression, using logistic-based models in research, and writing about the subject, Professor Hilbe focuses on the most important features of the logistic model. Serving as a guide between the author and readers, the book explains how to construct a logistic model, interpret coefficients and odds ratios, predict probabilities and their standard errors based on the model, and evaluate the model as to its fit. Using a variety of real data examples, mostly from health outcomes, the author offers a basic step-by-step guide to developing and interpreting observation and grouped logistic models as well as penalized and exact logistic regression. He also gives a step-by-step guide to modeling Bayesian logistic regression. R statistical software is used throughout the book to display the statistical models while SAS and Stata codes for all examples are included at the end of

each chapter. The example code can be adapted to readers' own analyses. All the code is available on the author's website.

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.

Nursing Informatics for the Advanced Practice Nurse, Second Edition Susan McBride, PhD, RN-BC, CPHIMS 2018-09-28 A "must have" text for all healthcare professionals practicing in the digital age of healthcare. Nursing Informatics for the Advanced Practice Nurse, Second Edition, delivers a practical array of tools and information to show how advanced practice nurses can maximize patient safety, quality of care, and cost savings through the use of technology. Since the first edition of this text, health information technology has only expanded. With increased capability and complexity, the current technology landscape presents new challenges and opportunities for interprofessional teams. Nurses, who are already trained to use the analytic process to assess, analyze, and intervene, are in a unique position to use this same process to lead teams in addressing healthcare delivery challenges with data. The only informatics text written specifically for advanced practice nurses, Nursing Informatics for the Advanced Practice Nurse, Second Edition, takes an expansive, open, and innovative approach to thinking about technology. Every chapter is highly practical, filled with case studies and exercises that demonstrate how the content presented relates to the contemporary healthcare environment. Where applicable, concepts are aligned with the six domains within the Quality and Safety Education in Nursing (QSEN) approach and are tied to national goals and initiatives. Featuring chapters written by physicians, epidemiologists, engineers, dieticians, and health services researchers, the format of this text reflects its core principle that it takes a team to fully realize the benefit of technology for patients and healthcare consumers. What's New Several chapters present new material to support teams' optimization of electronic health records Updated national standards and initiatives Increased focus and new information on usability, interoperability and workflow redesign throughout, based on latest evidence Explores challenges and solutions of electronic clinical quality measures (eCQMs), a major initiative in healthcare informatics; Medicare and Medicaid Services use eCQMs to judge quality of care, and how dynamics change rapidly in today's environment Key Features Presents national standards and healthcare initiatives Provides in-depth case studies for better understanding of informatics in practice Addresses the DNP Essentials, including II: Organization and system leadership for quality improvement and systems thinking, IV: Core Competency for Informatics, and Interprofessional Collaboration for Improving Patient and Population health outcomes Includes end-of-chapter exercises and questions for students Instructor's Guide and PowerPoint slides for instructors Aligned with QSEN graduate-level competencies

Big Data Analytics for Improved Accuracy, Efficiency, and Decision Making in Digital Marketing Singh, Amandeep 2021-06-18 The availability of big data, low-cost commodity hardware, and new

information management and analytic software have produced a unique moment in the history of data analysis. The convergence of these trends means that we have the capabilities required to analyze astonishing data sets quickly and cost-effectively for the first time in history. They represent a genuine leap forward and a clear opportunity to realize enormous gains in terms of efficiency, productivity, revenue, and profitability especially in digital marketing. Data plays a huge role in understanding valuable insights about target demographics and customer preferences. From every interaction with technology, regardless of whether it is active or passive, we are creating new data that can describe us. If analyzed correctly, these data points can explain a lot about our behavior, personalities, and life events. Companies can leverage these insights for product improvements, business strategy, and marketing campaigns to cater to the target customers. Big Data Analytics for Improved Accuracy, Efficiency, and Decision Making in Digital Marketing aids understanding of big data in terms of digital marketing for meaningful analysis of information that can improve marketing efforts and strategies using the latest digital techniques. The chapters cover a wide array of essential marketing topics and techniques, including search engine marketing, consumer behavior, social media marketing, online advertising, and how they interact with big data. This book is essential for professionals and researchers working in the field of analytics, data, and digital marketing, along with marketers, advertisers, brand managers, social media specialists, managers, sales professionals, practitioners, researchers, academicians, and students looking for the latest information on how big data is being used in digital marketing strategies.

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

Foundations of Rural Public Health in America Joseph N. Inungu 2021-02-03 Foundations of Rural Public Health in America spans a wide variety of important issues affecting rural public health, including consumer and family health, environmental and occupational health, mental health, substance abuse, disease prevention and control, rural health care delivery systems, and health disparities. Divided into five

sections, the book covers understanding rural communities, public health systems and policies for rural communities, health disparities in rural communities and among special populations, and advancing rural health including assessment, planning and intervention. Written by a multidisciplinary team of experienced scholars and practitioners, this authoritative text comprehensively covers rural health issues today.

Data Science – Analytics and Applications Peter Haber 2017-09-13 The iDSC Proceedings reports on state-of-the-art results in Data Science research, development and business. Topics and content of the IDSC2017 proceedings are • Reasoning and Predictive Analytics • Data Analytics in Community Networks • Data Analytics through Sentiment Analysis • User/Customer-centric Data Analytics • Data Analytics in Industrial Application Scenarios Advances in technology and changes in the business and social environment have led to an increasing flood of data, fueling both the need and the desire to generate value from these assets. The emerging field of Data Science is poised to deliver theoretical and practical solutions to the pressing issues of data-driven applications. The 1st International Data Science Conference (iDSC2017 / http://www.idsc.at) organized by Salzburg University of Applied Sciences in cooperation with Information Professionals GmbH, established a new key Data Science event, by pro viding a forum for the international exchange of Data Science technologies and applications.

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.

Project Leadership and Team Building in Global Project Management Pranav Bhola 2017-01-20 Engineering businesses today run through projects. Projects are successful when we have effective project leadership, which builds effective teams and teams. All these attributes increase the performance of the organization and enable it to achieve competitive advantage. Project management is the need of today's businesses for acquiring business development and attaining business performance in local as well as in global markets as business performance is driven by competitive advantage, which is possible through successful project management. Development of new products and other competitive products and services is done through the implementation of projects. Projects are deployed for process improvements, which further add to the profitability and growth of the business. This book discusses the aspects of project management processes, project leadership, and team building in context to project management together, which improves business performance.

Theory and Practice of Computation Nishizaki Shin-ya 2017-10-27 This is the proceedings of the Sixth Workshop on Computing: Theory and Practice, WCTP 2016 devoted to theoretical and practical approaches to computation. This workshop was organized by four top universities in Japan and the Philippines: Tokyo Institute of Technology, Osaka University, University of the Philippines - Diliman, and De La Salle University. The proceedings provides a view of the current movement in research in these two countries. The papers included in the proceedings focus on the two research areas: theoretical and practical aspects of computation.

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.

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.

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.

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.

Wearable Telemedicine Technology for the Healthcare Industry Deepak Gupta 2021-11-16 Wearable Telemedicine Technology for the Healthcare Industry: Product Design and Development focuses on recent advances and benefits of wearable telemedicine techniques for remote health monitoring and prevention of chronic conditions, providing real time feedback and help with rehabilitation and biomedical applications. Readers will learn about various techniques used by software engineers, computer scientists and biomedical engineers to apply intelligent systems, artificial intelligence, machine learning, virtual reality and augmented reality to gather, transmit, analyze and deliver real-time clinical and biological data to clinicians, patients and researchers.

Wearable telemedicine technology is currently establishing its place with large-scale impact in many healthcare sectors because information about patient health conditions can be gathered anytime and anywhere outside of traditional clinical settings, hence saving time, money and even lives. Provides readers with methods and applications for wearable devices for ubiquitous health and activity monitoring, wearable biosensors, wearable app development and management using machine learning techniques, and more Integrates coverage of a number of key wearable technologies, such as ubiquitous textile systems for movement disorders, remote surgery using telemedicine, intelligent computing algorithms for smart wearable healthcare devices, blockchain, and more Provides readers with in-depth coverage of wearable product design and development

The Leading Practice of Decision Making in Modern Business Systems Elena G. Popkova 2019-12-02 Concentrating on the Russian model, this book reflects the leading practical experience of decision making in modern business systems and presents innovative technologies and perspectives to optimize this process.

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.

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 hrough 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.

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.

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.

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.

Making Sense of Data II Glenn J. Myatt 2009-03-04 A hands-on guide to making valuable decisions from data using advanced data mining methods and techniques This second installment in the Making Sense of Data series continues to explore a diverse range of commonly used approaches to making and communicating decisions from data. Delving into more technical topics, this book equips readers with advanced data mining methods that are needed to successfully translate raw data into smart decisions across various fields of research including business, engineering, finance, and the social sciences. Following a comprehensive introduction that details how to define a problem, perform an analysis, and deploy the results, Making Sense of Data II addresses the following key techniques for advanced data analysis: Data Visualization reviews principles and methods for understanding and communicating data through the use of visualization including single variables, the relationship between two or more variables, groupings in data, and dynamic approaches to interacting with data through graphical user interfaces. Clustering outlines common approaches to clustering data sets and provides detailed explanations of methods for determining the distance between observations and procedures for clustering observations. Agglomerative hierarchical clustering, partitioned-based clustering, and fuzzy clustering are also discussed. Predictive Analytics presents a discussion on how to build and assess models, along with a series of predictive analytics that can be used in a variety of situations including principal component analysis, multiple linear regression, discriminate analysis, logistic regression, and Naïve Bayes. Applications demonstrates the current uses of data mining across a wide range of industries and features case studies that illustrate the related applications in real-world scenarios. Each method is discussed within the context of a data mining process including defining the problem and deploying the results, and readers are provided with guidance on when and how each method should be used. The related Web site for the series (www.makingsenseofdata.com) provides a hands-on data analysis and data mining experience. Readers wishing to gain more practical experience will benefit from the tutorial section of the book in conjunction with the TraceisTM software, which is freely available online. With its comprehensive collection of advanced data mining methods coupled with tutorials for applications in a range of fields, Making Sense of Data II is an indispensable book for courses on data analysis and data mining at the upper-undergraduate and graduate levels. It also serves as a valuable reference for researchers and professionals who are interested in learning how to accomplish effective decision making from data and understanding if data analysis and data mining methods could help their organization.

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

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 Predictive Analytics and Decisioning Systems for Medicine: Informatics Accuracy and Cost-Effectiveness for Healthcare Administration and Del Linda Miner 2016-07-14 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 researchProvides real world step-by-step tutorials to help beginners understand how the predictive analytic processes works and to successfully do the computationsDemonstrates methods to help sort through data to make better observations and allow you to make better predictions"

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

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.

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.

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 modeling count data, including a thorough presentation of the Poisson model. It then works up to an analysis of the problem of overdispersion and of the negative binomial model, and finally to the many variations that can be made to the base count models. 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 health, ecology, econometrics, transportation, and other fields.

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.

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.

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.

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.

Multidisciplinarity and Interdisciplinarity in Health Nima Rezaei 2022-09-03 The contributed volume "Multidisciplinarity and Interdisciplinarity in Health" is a health-centered volume of the Integrated Science Book series. Lack of confidence, lack of expertise, complexities of healthcare, the confusing nature of healthcare environments, and lack of organization and standardization can become obstacles to successful communication. This volume establishes how extensive is the interface between formal sciences and medical sciences

on health-related issues. The book provides an overview of the value of the integration of formal, biological, and medical sciences and related products, i.e., health informatics and biomedical engineering, to frame a holistic approach to health systems, healthcare, medical practice, drug discovery, and medical device design. The book also focuses on innovative solutions to the most critical issues of different health crisis, including obesity, infectious outbreaks, and cancer that can be found by using an integrative approach. It also contains the fascinating crossroads between medical sciences, physics, and mind that is discussed from multiple perspectives on cognition, neuroscience, and psychiatry. These multidisciplinary considerations will expand the concepts of creativity, leadership, aesthetics, empathy and mental health.

Medical Devices for Pharmacy and Other Healthcare Professions Ahmed Ibrahim Fathelrahman 2021-12-30 Today, more than ever, the pharmacist is a full-member of the health team and many of the pharmacist's patients are using a host of other devices from various specialty areas of medicine and surgery. Medical Devices for Pharmacy and Other Healthcare Professions presents a comprehensive review of most devices that pharmacists and pharmacy personnel encounter during practice. The devices covered are relevant to pharmacists working in various work settings from hospitals, community pharmacies, and health insurance sector, to regulatory bodies, academia, and research institutes. Even if a pharmacist does not come across each of these devices on a regular basis, the book is a valuable reference source for those occasions when information is needed by a practitioner, and for instructing interns and residents. The book discusses devices needed for special pharmaceutical services and purposes such as residential care homes and primary care based with GPs, pharmacy-based smoking cessation services, pharmacy-based anticoagulant services, pain management and terminal care, medication adherence and automation in hospital pharmacy. Additional features include: Provides information on devices regarding theory, indications, and procedures concerning use, cautions, and place, in therapy. Assists pharmacists in understanding medical devices and instructing patients with the use of these devices. Focuses on providing the available evidence on effectiveness and cost-effectiveness of devices and the latest information in the particular field. Other healthcare providers interested in medical devices or involved in patients care where medical devices represent part of the provided care would benefit from the book.

Towards a Theory for Designing Machine Learning Systems for Complex Decision Making Problems Schahin Tofangchi 2020-04-21 The ubiquitousness of data and the emergence of data-driven machine learning approaches provide new means of creating insights. However, coping with the great volume, velocity, and variety of data requires improved data analysis methods. This dissertation contributes a nascent design theory, named the Division-of-Labor framework, for developing complex machine learning systems that can not only address the challenges of big data but also leverage their characteristics to perform more sophisticated analyses. I evaluate the proposed design principles in three practical settings, in which I apply the principles to design machine learning systems that (i) support treatment decision making for cancer patients, (ii) provide consumers with recommendations on two-sided platforms, and (iii) address a trade-off between efficiency and comfort in the context of autonomous vehicles. The evaluations partially validate the proposed theory, but also show that some principles require further attention in order to be practicable.

Practical Text Mining and Statistical Analysis for Non-structured Text Data Applications Gary Miner 2012 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. This comprehensive professional reference brings together all the information, tools and methods a professional will need to

efficiently use text mining applications and statistical analysis. The Handbook of Practical Text Mining and Statistical Analysis for Non-structured Text Data Applications 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. -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

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.

Practical Data Analytics for Innovation in Medicine Gary D Miner 2022-09-01 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, Second Edition discusses the needs of healthcare and medicine in the 21st century, explaining how data analytics play an important and revolutionary role. 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, such as predictive analytics, which can bolster patient care, reduce costs, and deliver greater efficiencies across a wide range of operational functions. Sections bring a historical perspective, highlight the importance of using predictive analytics to help solve health crisis such as the COVID-19 pandemic, provide access to practical step-by-step tutorials and case studies online, and use exercises based on real-world examples of successful predictive and prescriptive tools and systems. The final part of the book focuses on specific technical operations related to quality, cost-effective medical and nursing care delivery and administration brought by practical predictive analytics. 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 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

Codeless Time Series Analysis with KNIME Corey Weisinger 2022-08-19 Perform time series analysis using KNIME Analytics Platform, covering both statistical methods and machine learning-based methods Key Features Gain a solid understanding of time series analysis and its applications using KNIME Learn how to apply popular statistical and machine learning time series analysis techniques Integrate other tools such as Spark, H2O, and Keras with KNIME within the same application Book Description This book will take you on a practical journey, teaching you how to implement solutions for many use cases involving time series analysis techniques. This learning journey is organized in a crescendo of difficulty, starting from the easiest yet effective techniques applied to weather forecasting, then introducing ARIMA and its variations, moving

on to machine learning for audio signal classification, training deep learning architectures to predict glucose levels and electrical energy demand, and ending with an approach to anomaly detection in IoT. There's no time series analysis book without a solution for stock price predictions and you'll find this use case at the end of the book, together with a few more demand prediction use cases that rely on the integration of KNIME Analytics Platform and other external tools. By the end of this time series book, you'll have learned about popular time series analysis techniques and algorithms, KNIME Analytics Platform, its time series extension, and how to apply both to common use cases. What you will learn Install and configure KNIME time series integration Implement common preprocessing techniques before analyzing data Visualize and display time series data in the form of plots and graphs Separate time series data into trends, seasonality, and residuals Train and deploy FFNN and LSTM to perform predictive analysis Use multivariate analysis by enabling GPU training for neural networks Train and deploy an ML-based forecasting model using Spark and H2O Who this book is for This book is for data analysts and data scientists who want to develop forecasting applications on time series data. While no coding skills are required thanks to the codeless implementation of the examples, basic knowledge of KNIME Analytics Platform is assumed. The first part of the book targets beginners in time series analysis, and the subsequent parts of the book challenge both beginners as well as advanced users by introducing real-world time series applications.