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KEY=METHODS - CORINNE MCINTYRE

Data Mining Methods and Models

John Wiley & Sons **Apply powerful Data Mining Methods and Models to Leverage your Data for Actionable Results Data Mining Methods and Models provides: * The latest techniques for uncovering hidden nuggets of information * The insight into how the data mining algorithms actually work * The hands-on experience of performing data mining on large data sets Data Mining Methods and Models: * Applies a "white box" methodology, emphasizing an understanding of the model structures underlying the softwareWalks the reader through the various algorithms and provides examples of the operation of the algorithms on actual large data sets, including a detailed case study, "Modeling Response to Direct-Mail Marketing" * Tests the reader's level of understanding of the concepts and methodologies, with over 110 chapter exercises * Demonstrates the Clementine data mining software suite, WEKA open source data mining software, SPSS statistical software, and Minitab statistical software * Includes a companion Web site, www.dataminingconsultant.com, where the data sets used in the book may be downloaded, along with a comprehensive set of data mining resources. Faculty adopters of the book have access to an array of helpful resources, including solutions to all exercises, a PowerPoint(r) presentation of each chapter, sample data mining course projects and accompanying data sets, and multiple-choice chapter quizzes. With its emphasis on learning by doing, this is an excellent textbook for students in business, computer science, and statistics, as well as a problem-solving reference for data analysts and professionals in the field. An Instructor's Manual presenting detailed solutions to all the problems in the book is available onlne.**

Data Mining

Concepts, Models, Methods, and Algorithms

John Wiley & Sons **Presents the latest techniques for analyzing and extracting information from large amounts of data in high-dimensional data spaces The revised and updated third edition of Data Mining contains in one volume an introduction to a systematic approach to the analysis of large data sets that integrates results from disciplines such as statistics, artificial intelligence, data bases, pattern recognition, and computer visualization. Advances in deep learning technology have opened an entire new spectrum of applications. The author—a noted expert on the topic—explains the basic concepts, models, and methodologies that have been developed in recent years. This new edition introduces and expands on many topics, as well as providing revised sections on software tools and data mining applications. Additional changes include an updated list of references for further study, and an extended list of problems and questions that relate to each chapter.This third edition presents new and expanded information that: • Explores big data and cloud computing • Examines deep learning • Includes information on convolutional neural networks (CNN) • Offers reinforcement learning • Contains semi-supervised learning and S3VM • Reviews model evaluation for unbalanced data Written for graduate students in computer science, computer engineers, and computer information systems professionals, the updated third edition of Data Mining continues to provide an essential guide to the basic principles of the technology and the most recent developments in the field.**

Data Mining

Concepts, Models and Techniques

Springer Science & Business Media **The knowledge discovery process is as old as Homo sapiens. Until some time ago this process was solely based on the 'natural personal' computer provided by Mother Nature. Fortunately, in recent decades the problem has begun to be solved based on the development of the Data mining technology, aided by the huge computational power of the 'artificial' computers. Digging intelligently in different large databases, data mining aims to extract implicit, previously unknown and potentially useful information from data, since "knowledge is power". The goal of this book is to provide, in a friendly way, both theoretical concepts and, especially, practical techniques of this exciting field, ready to be applied in real-world situations. Accordingly, it is meant for all those who wish to learn how to explore and analysis of large quantities of data in order to discover the hidden nugget of information.**

Data Mining Methods & Models

John Wiley & Sons **The book introduces readers to data mining methods and models, including association rules, clustering, K-nearest neighbor, statistical inference, neural networks, linear and logistic regression, and multivariate analysis. Taking a unified approach based on CRISP methodology, the book discusses the latest techniques for uncovering hidden nuggets of information and provides insight into how the data mining algorithms actually work with hands-on experience performing data mining on large data sets. · Dimension Reduction Methods · Regression Modeling · Multiple Regression and Model Building · Logistic Regression · Naïve Bayes and Bayesian Networks · Genetic Algorithms · Case Study: Modeling Response to Direct-Mail Marketing**

Business Modeling and Data Mining

Elsevier **Business Modeling and Data Mining demonstrates how real world business problems can be formulated so that data mining can answer them. The concepts and techniques presented in this book are the essential building blocks in understanding what models are and how they can be used practically to reveal hidden assumptions and needs, determine problems, discover data, determine costs, and explore the whole domain of the problem. This book articulately explains how to understand both the strategic and tactical aspects of any business problem, identify where the key leverage points are and determine where quantitative techniques of analysis -- such as data mining -- can yield most benefit. It addresses techniques for discovering how to turn colloquial expression and vague descriptions of a business problem first into qualitative models and then into well-defined quantitative models (using data mining) that can then be used to find a solution. The book completes the process by illustrating how these findings from data mining can be turned into strategic or tactical implementations. · Teaches how to discover, construct and refine models that are useful in business situations · Teaches how to design, discover and develop the data necessary for mining · Provides a practical approach to mining data for all business situations · Provides a comprehensive, easy-to-use, fully interactive methodology for building models and mining data · Provides pointers to supplemental online resources, including a downloadable version of the methodology and software tools.**

Data Mining

Concepts, Models, Methods, and Algorithms

John Wiley & Sons **This book reviews state-of-the-art methodologies and techniques for analyzing enormous quantities of raw data in high-dimensional data spaces, to extract new information for decision making. The goal of this book is to provide a single introductory source, organized in a systematic way, in which we could direct the readers in analysis of large data sets, through the explanation of basic concepts, models and methodologies developed in recent decades. If you are an instructor or professor and would like to obtain instructor's materials, please visit http://booksupport.wiley.com If you are an instructor or professor and would like to obtain a solutions manual, please send an email to: pressbooks@ieee.org**

Predictive Data Mining Models

Springer **This book reviews forecasting data mining models, from basic tools for stable data through causal models, to more advanced models using trends and cycles. These models are demonstrated on the basis of business-related data, including stock indices, crude oil prices, and the price of gold. The book's main approach is above all descriptive, seeking to explain how the methods concretely work; as such, it includes selected citations, but does not go into deep scholarly reference. The data sets and software reviewed were selected for their widespread availability to all readers with internet access.**

Data Mining and Predictive Analytics

John Wiley & Sons **Learn methods of data analysis and their application to real-world data sets. Offers comprehensive coverage of association rules, clustering, neural networks, logistic regression, multivariate analysis, and R statistical programming language Features over 750 chapter exercises, allowing readers to assess their understanding of the new**

material Provides a detailed case study that brings together the lessons learned in the book Includes access to the companion website, www.dataminingconsultant, with exclusive password-protected instructor content

Data Mining Techniques

For Marketing, Sales, and Customer Relationship Management

John Wiley & Sons The leading introductory book on data mining, fully updated andrevised! When Berry and Linoff wrote the first edition of Data MiningTechniques in the late 1990s, data mining was just starting tomove out of the lab and into the office and has since grown tobecome an indispensable tool of modern business. This newedition—more than 50% new and revised— is asignificant update from the previous one, and shows you how toharness the newest data mining methods and techniques to solvecommon business problems. The duo of unparalleled authors shareinvaluable advice for improving response rates to direct marketingcampaigns, identifying new customer segments, and estimating creditrisk. In addition, they cover more advanced topics such aspreparing data for analysis and creating the necessaryinfrastructure for data mining at your company. Features significant updates since the previous edition andupdates you on best practices for using data mining methods andtechniques for solving common business problems Covers a new data mining technique in every chapter along withclear, concise explanations on how to apply each techniqueimmediately Touches on core data mining techniques, including decisiontrees, neural networks, collaborative filtering, association rules,link analysis, survival analysis, and more Provides best practices for performing data mining using simpletools such as Excel Data Mining Techniques, Third Edition covers a new datamining technique with each successive chapter and then demonstrateshow you can apply that technique for improved marketing, sales, andcustomer support to get immediate results.

Statistical and Machine-Learning Data Mining

Techniques for Better Predictive Modeling and Analysis of Big Data, Second Edition

CRC Press The second edition of a bestseller, Statistical and Machine-Learning Data Mining: Techniques for Better Predictive Modeling and Analysis of Big Data is still the only book, to date, to distinguish between statistical data mining and machine-learning data mining. The first edition, titled Statistical Modeling and Analysis for Database Marketing: Effective Techniques for Mining Big Data, contained 17 chapters of innovative and practical statistical data mining techniques. In this second edition, renamed to reflect the increased coverage of machine-learning data mining techniques, the author has completely revised, reorganized, and repositioned the original chapters and produced 14 new chapters of creative and useful machine-learning data mining techniques. In sum, the 31 chapters of simple yet insightful quantitative techniques make this book unique in the field of data mining literature. The statistical data mining methods effectively consider big data for identifying structures (variables) with the appropriate predictive power in order to yield reliable and robust large-scale statistical models and analyses. In contrast, the author's own GenIQ Model provides machine-learning solutions to common and virtually unapproachable statistical problems. GenIQ makes this possible — its utilitarian data mining features start where statistical data mining stops. This book contains essays offering detailed background, discussion, and illustration of specific methods for solving the most commonly experienced problems in predictive modeling and analysis of big data. They address each methodology and assign its application to a specific type of problem. To better ground readers, the book provides an in-depth discussion of the basic methodologies of predictive modeling and analysis. While this type of overview has been attempted before, this approach offers a truly nitty-gritty, step-by-step method that both tyros and experts in the field can enjoy playing with.

Statistical and Machine-Learning Data Mining:

Techniques for Better Predictive Modeling and Analysis of Big Data, Third Edition

CRC Press Interest in predictive analytics of big data has grown exponentially in the four years since the publication of Statistical and Machine-Learning Data Mining: Techniques for Better Predictive Modeling and Analysis of Big Data, Second Edition. In the third edition of this bestseller, the author has completely revised, reorganized, and repositioned the original chapters and produced 13 new chapters of creative and useful machine-learning data mining techniques. In sum, the 43 chapters of simple yet insightful quantitative techniques make this book unique in the field of data mining literature. What is new in the Third Edition: The current chapters have been completely rewritten. The core content has been extended with strategies and methods for problems drawn from the top predictive analytics conference and statistical modeling workshops. Adds thirteen new chapters including coverage of data science and its rise, market share estimation, share of wallet modeling without survey data, latent market segmentation, statistical regression modeling that deals with incomplete data, decile analysis assessment in terms of the predictive power of the data, and a user-friendly version of text mining, not requiring an advanced background in natural language processing (NLP). Includes SAS subroutines which can be easily converted to other languages. As in the previous edition, this book offers detailed background, discussion, and illustration of specific methods for solving the most commonly experienced problems in predictive modeling and analysis of big data. The author addresses each methodology and assigns its application to a specific type of problem. To better ground readers, the book provides an in-depth discussion of the basic methodologies of predictive modeling and analysis. While this type of overview has been attempted before, this approach offers a truly nitty-gritty, step-by-step method that both tyros and experts in the field can enjoy playing with.

Applied Data Mining

Statistical Methods for Business and Industry

John Wiley & Sons Data mining can be defined as the process of selection, exploration and modelling of large databases, in order to discover models and patterns. The increasing availability of data in the current information society has led to the need for valid tools for its modelling and analysis. Data mining and applied statistical methods are the appropriate tools to extract such knowledge from data. Applications occur in many different fields, including statistics, computer science, machine learning, marketing and finance. This book is the first to describe applied data mining methods in a consistent statistical framework, and then show how they can be applied in practice. All the methods described are either computational, or of a statistical modelling nature. Complex probabilistic models and mathematical tools are not used, so the book is accessible to a wide audience of students and industry professionals. The second half of the book consists of nine case studies, taken from the author's own work in industry, that demonstrate how the methods described can be applied to real models. Provides a solid introduction to applied data mining methods in a consistent statistical framework Includes coverage of classical, multivariate and Bayesian statistical methodology Includes many recent developments such as web mining, sequential Bayesian analysis and memory based reasoning Each statistical method described is illustrated with real life applications Features a number of detailed case studies based on applied projects within industry Incorporates discussion on software used in data mining, with particular emphasis on SAS Supported by a website featuring data sets, software and additional material Includes an extensive bibliography and pointers to further reading within the text Author has many years experience teaching introductory and multivariate statistics and data mining, and working on applied projects within industry A valuable resource for advanced undergraduate and graduate students of applied statistics, data mining, computer science and economics, as well as for professionals working in industry on projects involving large volumes of data - such as in marketing or financial risk management.

Advances in Intelligent Tutoring Systems

Springer May the Forcing Functions be with You: The Stimulating World of AIED and ITS Research It is my pleasure to write the foreword for Advances in Intelligent Tutoring S- tems. This collection, with contributions from leading researchers in the field of artificial intelligence in education (AIED), constitutes an overview of the many challenging research problems that must be solved in order to build a truly intel- gent tutoring system (ITS). The book not only describes some of the approaches and techniques that have been explored to meet these challenges, but also some of the systems that have actually been built and deployed in this effort. As discussed in the Introduction (Chapter 1), the terms "AIED" and "ITS" are often used int- changeably, and there is a large overlap in the researchers devoted to exploring this common field. In this foreword, I will use the term "AIED" to refer to the - search area, and the term "ITS" to refer to the particular kind of system that AIED researchers build. It has often been said that AIED is "AI-complete" in that to produce a tutoring system as sophisticated and effective as a human tutor requires solving the entire gamut of artificial intelligence research (AI) problems.

Statistical Modeling and Analysis for Database Marketing

Effective Techniques for Mining Big Data

CRC Press Traditional statistical methods are limited in their ability to meet the modern challenge of mining large amounts of data. Data miners, analysts, and statisticians are searching for innovative new data mining techniques with greater predictive power, an attribute critical for reliable models and analyses. Statistical Modeling and Analysis fo

XML Data Mining: Models, Methods, and Applications

Models, Methods, and Applications

IGI Global **The widespread use of XML in business and scientific databases has prompted the development of methodologies, techniques, and systems for effectively managing and analyzing XML data. This has increasingly attracted the attention of different research communities, including database, information retrieval, pattern recognition, and machine learning, from which several proposals have been offered to address problems in XML data management and knowledge discovery. XML Data Mining: Models, Methods, and Applications aims to collect knowledge from experts of database, information retrieval, machine learning, and knowledge management communities in developing models, methods, and systems for XML data mining. This book addresses key issues and challenges in XML data mining, offering insights into the various existing solutions and best practices for modeling, processing, analyzing XML data, and for evaluating performance of XML data mining algorithms and systems.**

Fuzzy Modeling and Genetic Algorithms for Data Mining and Exploration

Elsevier **Fuzzy Modeling and Genetic Algorithms for Data Mining and Exploration is a handbook for analysts, engineers, and managers involved in developing data mining models in business and government. As you'll discover, fuzzy systems are extraordinarily valuable tools for representing and manipulating all kinds of data, and genetic algorithms and evolutionary programming techniques drawn from biology provide the most effective means for designing and tuning these systems. You don't need a background in fuzzy modeling or genetic algorithms to benefit, for this book provides it, along with detailed instruction in methods that you can immediately put to work in your own projects. The author provides many diverse examples and also an extended example in which evolutionary strategies are used to create a complex scheduling system. Written to provide analysts, engineers, and managers with the background and specific instruction needed to develop and implement more effective data mining systems Helps you to understand the trade-offs implicit in various models and model architectures Provides extensive coverage of fuzzy SQL querying, fuzzy clustering, and fuzzy rule induction Lays out a roadmap for exploring data, selecting model system measures, organizing adaptive feedback loops, selecting a model configuration, implementing a working model, and validating the final model In an extended example, applies evolutionary programming techniques to solve a complicated scheduling problem Presents examples in C, C++, Java, and easy-to-understand pseudo-code Extensive online component, including sample code and a complete data mining workbench**

Data Analysis and Applications 1

New and Classical Approaches

Wiley-ISTE **This series of books collects a diverse array of work that provides the reader with theoretical and applied information on data analysis methods, models, and techniques, along with appropriate applications. Volume 1 begins with an introductory chapter by Gilbert Saporta, a leading expert in the field, who summarizes the developments in data analysis over the last 50 years. The book is then divided into three parts: Part 1 presents clustering and regression cases; Part 2 examines grouping and decomposition, GARCH and threshold models, structural equations, and SME modeling; and Part 3 presents symbolic data analysis, time series and multiple choice models, modeling in demography, and data mining.**

Applied Data Mining for Business and Industry

John Wiley & Sons **The increasing availability of data in our current, information overloaded society has led to the need for valid tools for its modelling and analysis. Data mining and applied statistical methods are the appropriate tools to extract knowledge from such data. This book provides an accessible introduction to data mining methods in a consistent and application oriented statistical framework, using case studies drawn from real industry projects and highlighting the use of data mining methods in a variety of business applications. Introduces data mining methods and applications. Covers classical and Bayesian multivariate statistical methodology as well as machine learning and computational data mining methods. Includes many recent developments such as association and sequence rules, graphical Markov models, lifetime value modelling, credit risk, operational risk and web mining. Features detailed case studies based on applied projects within industry. Incorporates discussion of data mining software, with case studies analysed using R. Is accessible to anyone with a basic knowledge of statistics or data analysis. Includes an extensive bibliography and pointers to further reading within the text. Applied Data Mining for Business and Industry, 2nd edition is aimed at advanced undergraduate and graduate students of data mining, applied statistics, database management, computer science and economics. The case studies will provide guidance to professionals working in industry on projects involving large volumes of data, such as customer relationship management, web design, risk management, marketing, economics and finance.**

Data Mining for Business Intelligence

Concepts, Techniques, and Applications in Microsoft Office Excel with XLMiner

John Wiley & Sons

Data Mining Methods and Applications

CRC Press **With today's information explosion, many organizations are now able to access a wealth of valuable data. Unfortunately, most of these organizations find they are ill-equipped to organize this information, let alone put it to work for them. Gain a Competitive Advantage Employ data mining in research and forecasting Build models with data management tools and methodology optimization Gain sophisticated breakdowns and complex analysis through multivariate, evolutionary, and neural net methods Learn how to classify data and maintain quality Transform Data into Business Acumen Data Mining Methods and Applications supplies organizations with the data management tools that will allow them to harness the critical facts and figures needed to improve their bottom line. Drawing from finance, marketing, economics, science, and healthcare, this forward thinking volume: Demonstrates how the transformation of data into business intelligence is an essential aspect of strategic decision-making Emphasizes the use of data mining concepts in real-world scenarios with large database components Focuses on data mining and forecasting methods in conducting market research**

Data Mining for Business Analytics

Concepts, Techniques, and Applications with XLMiner

John Wiley & Sons **Data Mining for Business Analytics: Concepts, Techniques, and Applications in XLMiner®, Third Edition presents an applied approach to data mining and predictive analytics with clear exposition, hands-on exercises, and real-life case studies. Readers will work with all of the standard data mining methods using the Microsoft® Office Excel® add-in XLMiner® to develop predictive models and learn how to obtain business value from Big Data. Featuring updated topical coverage on text mining, social network analysis, collaborative filtering, ensemble methods, uplift modeling and more, the Third Edition also includes: Real-world examples to build a theoretical and practical understanding of key data mining methods End-of-chapter exercises that help readers better understand the presented material Data-rich case studies to illustrate various applications of data mining techniques Completely new chapters on social network analysis and text mining A companion site with additional data sets, instructors material that include solutions to exercises and case studies, and Microsoft PowerPoint® slides https://www.dataminingbook.com Free 140-day license to use XLMiner for Education software Data Mining for Business Analytics: Concepts, Techniques, and Applications in XLMiner®, Third Edition is an ideal textbook for upper-undergraduate and graduate-level courses as well as professional programs on data mining, predictive modeling, and Big Data analytics. The new edition is also a unique reference for analysts, researchers, and practitioners working with predictive analytics in the fields of business, finance, marketing, computer science, and information technology. Praise for the Second Edition "...full of vivid and thought-provoking anecdotes... needs to be read by anyone with a serious interest in research and marketing."– Research Magazine "Shmueli et al. have done a wonderful job in presenting the field of data mining - a welcome addition to the literature." – ComputingReviews.com "Excellent choice for business analysts...The book is a perfect fit for its intended audience." – Keith McCormick, Consultant and Author of SPSS Statistics For Dummies, Third Edition and SPSS Statistics for Data Analysis and Visualization Galit Shmueli, PhD, is Distinguished Professor at National Tsing Hua University's Institute of Service Science. She has designed and instructed data mining courses since 2004 at University of Maryland, Statistics.com, The Indian School of Business, and National Tsing Hua University, Taiwan. Professor Shmueli is known for her research and teaching in business analytics, with a focus on statistical and data mining methods in information systems and healthcare. She has authored over 70 journal articles, books, textbooks and book chapters. Peter C. Bruce is President and Founder of the Institute for Statistics Education at www.statistics.com. He has written multiple journal articles and is the developer of Resampling Stats software. He is the author of Introductory Statistics and Analytics: A Resampling Perspective, also published by Wiley. Nitin R. Patel, PhD, is Chairman and cofounder of Cytel, Inc., based in Cambridge, Massachusetts. A Fellow of the American Statistical Association, Dr. Patel has also served as a Visiting Professor at the Massachusetts Institute of Technology and at Harvard University. He is a Fellow of the Computer Society of India and was a professor at the Indian Institute of Management, Ahmedabad for 15 years.**

Data Mining Cookbook

Modeling Data for Marketing, Risk, and Customer Relationship Management

John Wiley & Sons **Increase profits and reduce costs by utilizing this collectionof models of the most commonly asked data mining questions In order to find new ways to improve customer sales and support,and as well as manage risk, business managers must be able to minecompany databases. This book provides a step-by-step guide tocreating and implementing models of the most commonly asked datamining questions. Readers will learn how to prepare data to mine,and develop accurate data mining questions. The author, who hasover ten years of data mining experience, also provides actualtested models of specific data mining questions for marketing,sales, customer service and retention, and risk management. ACD-ROM, sold separately, provides these models for reader use.**

Data Analysis and Applications 1

Clustering and Regression, Modeling-estimating, Forecasting and Data Mining

John Wiley & Sons **This series of books collects a diverse array of work that provides the reader with theoretical and applied information on data analysis methods, models, and techniques, along with appropriate applications. Volume 1 begins with an introductory chapter by Gilbert Saporta, a leading expert in the field, who summarizes the developments in data analysis over the last 50 years. The book is then divided into three parts: Part 1 presents clustering and regression cases; Part 2 examines grouping and decomposition, GARCH and threshold models, structural equations, and SME modeling; and Part 3 presents symbolic data analysis, time series and multiple choice models, modeling in demography, and data mining.**

Machine Learning for Data Mining

Improve your data mining capabilities with advanced predictive modeling

Packt Publishing Ltd **Most data mining opportunities involve machine learning and often come with greater financial rewards. This book will help you bring the power of machine learning techniques into your data mining work. By the end of the book, you will be able to create accurate predictive models for data mining.**

Privacy-Preserving Data Mining

Models and Algorithms

Springer Science & Business Media **Advances in hardware technology have increased the capability to store and record personal data. This has caused concerns that personal data may be abused. This book proposes a number of techniques to perform the data mining tasks in a privacy-preserving way. This edited volume contains surveys by distinguished researchers in the privacy field. Each survey includes the key research content as well as future research directions of a particular topic in privacy. The book is designed for researchers, professors, and advanced-level students in computer science, but is also suitable for practitioners in industry.**

Graphical Models

Methods for Data Analysis and Mining

Developing Churn Models Using Data Mining Techniques and Social Network Analysis

IGI Global **"This book provides an in-depth analysis of attrition modeling relevant to business planning and management, offering insightful and detailed explanation of best practices, tools, and theory surrounding churn prediction and the integration of analytic tools"--Provided by publisher.**

Mathematical Methods for Knowledge Discovery and Data Mining

IGI Global **"This book focuses on the mathematical models and methods that support most data mining applications and solution techniques, covering such topics as association rules; Bayesian methods; data visualization; kernel methods; neural networks; text, speech, and image recognition; an invaluable resource for scholars and practitioners in the fields of biomedicine, engineering, finance, manufacturing, marketing, performance measurement, and telecommunications"--Provided by publisher.**

Data Mining and Statistics for Decision Making

John Wiley & Sons **Data mining is the process of automatically searching large volumes of data for models and patterns using computational techniques from statistics, machine learning and information theory; it is the ideal tool for such an extraction of knowledge. Data mining is usually associated with a business or an organization's need to identify trends and profiles, allowing, for example, retailers to discover patterns on which to base marketing objectives. This book looks at both classical and recent techniques of data mining, such as clustering, discriminant analysis, logistic regression, generalized linear models, regularized regression, PLS regression, decision trees, neural networks, support vector machines, Vapnik theory, naive Bayesian classifier, ensemble learning and detection of association rules. They are discussed along with illustrative examples throughout the book to explain the theory of these methods, as well as their strengths and limitations. Key Features: Presents a comprehensive introduction to all techniques used in data mining and statistical learning, from classical to latest techniques. Starts from basic principles up to advanced concepts. Includes many step-by-step examples with the main software (R, SAS, IBM SPSS) as well as a thorough discussion and comparison of those software. Gives practical tips for data mining implementation to solve real world problems. Looks at a range of tools and applications, such as association rules, web mining and text mining, with a special focus on credit scoring. Supported by an accompanying website hosting datasets and user analysis. Statisticians and business intelligence analysts, students as well as computer science, biology, marketing and financial risk professionals in both commercial and government organizations across all business and industry sectors will benefit from this book.**

Handbook of Statistical Analysis and Data Mining Applications

Elsevier **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**

Descriptive Data Mining

Springer **This book offers an overview of knowledge management. It starts with an introduction to the subject, placing descriptive models in the context of the overall field as well as within the more specific field of data mining analysis. Chapter 2 covers data visualization, including directions for accessing R open source software (described through Rattle). Both R and Rattle are free to students. Chapter 3 then describes market basket analysis, comparing it with more advanced models, and addresses the concept of lift. Subsequently, Chapter 4 describes smarketing RFM models and compares it with more advanced predictive models. Next, Chapter 5 describes association rules, including the APriori algorithm and provides software support from R. Chapter 6 covers cluster analysis, including software support from R (Rattle), KNIME, and WEKA, all of which are open source. Chapter 7 goes on to describe link analysis, social network metrics, and open source NodeXL software, and demonstrates link analysis application using PolyAnalyst output. Chapter 8 concludes the monograph. Using business-related data to demonstrate models, this descriptive book explains how methods work with some citations, but without detailed references. The data sets and software selected are widely available and can easily be accessed.**

Data Mining and Statistics for Decision Making

Wiley **Data mining is the process of automatically searching large volumes of data for models and patterns using computational techniques from statistics, machine learning and information theory; it is the ideal tool for such an extraction of knowledge. Data mining is usually associated with a business or an organization's need to identify trends and profiles, allowing, for example, retailers to discover patterns on which to base marketing objectives. This book looks at both classical and recent techniques of data mining, such as clustering, discriminant analysis, logistic regression, generalized linear models, regularized regression, PLS regression, decision trees, neural networks, support vector machines, Vapnik theory, naive Bayesian classifier, ensemble learning and detection of association rules. They are discussed along with illustrative examples throughout the book to explain the theory of these methods, as well as their strengths and limitations. Key Features: Presents a comprehensive introduction to all techniques used in data mining and statistical learning, from classical to latest techniques. Starts from basic principles up to advanced concepts. Includes many step-by-step examples with the main software (R, SAS, IBM SPSS) as well as a thorough discussion and comparison of those software. Gives practical tips for data mining implementation to solve real world problems. Looks at a range of tools and applications, such as association rules, web mining and text mining, with a special focus on credit scoring. Supported by an accompanying website hosting datasets and user analysis. Statisticians and business intelligence analysts, students as well as computer science, biology, marketing and financial risk professionals in both commercial and government organizations across all business and industry sectors will benefit from this book.**

Natural Hazards GIS-Based Spatial Modeling Using Data Mining Techniques

Springer **This edited volume assesses capabilities of data mining algorithms for spatial modeling of natural hazards in different countries based on a collection of essays written by experts in the field. The book is organized on different hazards including landslides, flood, forest fire, land subsidence, earthquake, and gully erosion. Chapters were peer-reviewed by recognized scholars in the field of natural hazards research. Each chapter provides an overview on the topic, methods applied, and discusses examples used. The concepts and methods are explained at a level that allows undergraduates to understand and other readers learn through examples. This edited volume is shaped and structured to provide the reader with a comprehensive overview of all covered topics. It serves as a reference for researchers from different fields including land surveying, remote sensing, cartography, GIS, geophysics, geology, natural resources, and geography. It also serves as a guide for researchers, students, organizations, and decision makers active in land use planning and hazard management.**

Link Mining: Models, Algorithms, and Applications

Springer Science & Business Media **This book offers detailed surveys and systematic discussion of models, algorithms and applications for link mining, focusing on theory and technique, and related applications: text mining, social network analysis, collaborative filtering and bioinformatics.**

Discovering Knowledge in Data

An Introduction to Data Mining

John Wiley & Sons

Ensemble Methods in Data Mining

Improving Accuracy Through Combining Predictions

Morgan & Claypool Publishers **"Ensemble methods have been called the most influential development in Data Mining and Machine Learning in the past decade. They combine multiple models into one usually more accurate than the best of its components. Ensembles can provide a critical boost to industrial challenges -- from investment timing to drug discovery, and fraud detection to recommendation systems -- where predictive accuracy is more vital than model interpretability. Ensembles are useful with all modeling algorithms, but this book focuses on decision trees to explain them most clearly. After describing trees and their strengths and weaknesses, the authors provide an overview of regularization -- today understood to be a key reason for the superior performance of modern ensembling algorithms. The book continues with a clear description of two recent developments: Importance Sampling (IS) and Rule Ensembles (RE). IS reveals classic ensemble methods -- bagging, random forests, and boosting -- to be special cases of a single algorithm, thereby showing how to improve their accuracy and speed. REs are linear rule models derived from decision tree ensembles. They are the most interpretable version of ensembles, which is essential to applications such as credit scoring and fault diagnosis. Lastly, the authors explain the paradox of how ensembles achieve greater accuracy on new data despite their (apparently much greater) complexity."--Publisher's website.**

Computational Medicine in Data Mining and Modeling

Springer Science & Business Media **This book presents an overview of a variety of contemporary statistical, mathematical and computer science techniques which are used to further the knowledge in the medical domain. The authors focus on applying data mining to the medical domain, including mining the sets of clinical data typically found in patient's medical records, image mining, medical mining, data mining and machine learning applied to generic genomic data and more. This work also introduces modeling behavior of cancer cells, multi-scale computational models and simulations of blood flow through vessels by using patient-specific models. The authors cover different imaging techniques used to generate patient-specific models. This is used in computational fluid dynamics software to analyze fluid flow. Case studies are provided at the end of each chapter. Professionals and researchers with quantitative backgrounds will find Computational Medicine in Data Mining and Modeling useful as a reference. Advanced-level students studying computer science, mathematics, statistics and biomedicine will also find this book valuable as a reference or secondary text book.**

Predictive Data Mining Models

Springer **This book provides an overview of predictive methods demonstrated by open source software modeling with Rattle (R') and WEKA. Knowledge management involves application of human knowledge (epistemology) with the technological advances of our current society (computer systems) and big data, both in terms of collecting data and in analyzing it. We see three types of analytic tools. Descriptive analytics focus on reports of what has happened. Predictive analytics extend statistical and/or artificial intelligence to provide forecasting capability. It also includes classification modeling. Prescriptive analytics applies quantitative models to optimize systems, or at least to identify improved systems. Data mining includes descriptive and predictive modeling. Operations research includes all three. This book focuses on prescriptive analytics. The book seeks to provide simple explanations and demonstration of some descriptive tools. This second edition provides more examples of big data impact, updates the content on visualization, clarifies some points, and expands coverage of association rules and cluster analysis. Chapter 1 gives an overview in the context of knowledge management. Chapter 2 discusses some basic data types. Chapter 3 covers fundamentals time series modeling tools, and Chapter 4 provides demonstration of multiple regression modeling. Chapter 5 demonstrates regression tree modeling. Chapter 6 presents autoregressive/integrated/moving average models, as well as GARCH models. Chapter 7 covers the set of data mining tools used in classification, to include special variants support vector machines, random forests, and boosting. Models are demonstrated using business related data. The style of the book is intended to be descriptive, seeking to explain how methods work, with some citations, but without deep scholarly reference. The data sets and software are all selected for widespread availability and access by any reader with computer links.**

R Data Mining

Implement data mining techniques through practical use cases and real world datasets

Packt Publishing Ltd **Mine valuable insights from your data using popular tools and techniques in R About This Book Understand the basics of data mining and why R is a perfect tool for it. Manipulate your data using popular R packages such as ggplot2, dplyr, and so on to gather valuable business insights from it. Apply effective data mining models to perform regression and classification tasks. Who This Book Is For If you are a budding data scientist, or a data analyst with a basic knowledge of R, and want to get into the intricacies of data mining in a practical manner, this is the book for you. No previous experience of data mining is required. What You Will Learn Master relevant packages such as dplyr, ggplot2 and so on for data mining Learn how to effectively organize a data mining project through the CRISP-DM methodology Implement data cleaning and validation tasks to get your data ready for data mining activities Execute Exploratory Data Analysis both the numerical and the graphical way Develop simple and multiple regression models along with logistic regression Apply basic ensemble learning techniques to join together results from different data mining models Perform text mining analysis from unstructured pdf files and textual data Produce reports to effectively communicate objectives, methods, and insights of your analyses In Detail R is widely used to leverage data mining techniques across many different industries, including finance, medicine, scientific research, and more. This book will empower you to produce and present impressive analyses from data, by selecting and implementing the appropriate data mining techniques in R. It will let you gain these powerful skills while immersing in a one of a kind data mining crime case, where you will be**

requested to help resolving a real fraud case affecting a commercial company, by the mean of both basic and advanced data mining techniques. While moving along the plot of the story you will effectively learn and practice on real data the various R packages commonly employed for this kind of tasks. You will also get the chance of apply some of the most popular and effective data mining models and algos, from the basic multiple linear regression to the most advanced Support Vector Machines. Unlike other data mining learning instruments, this book will effectively expose you the theory behind these models, their relevant assumptions and when they can be applied to the data you are facing. By the end of the book you will hold a new and powerful toolbox of instruments, exactly knowing when and how to employ each of them to solve your data mining problems and get the most out of your data. Finally, to let you maximize the exposure to the concepts described and the learning process, the book comes packed with a reproducible bundle of commented R scripts and a practical set of data mining models cheat sheets. Style and approach This book takes a practical, step-by-step approach to explain the concepts of data mining. Practical use-cases involving real-world datasets are used throughout the book to clearly explain theoretical concepts.

Data Mining

Concepts, Models, Methods, and Algorithms

Wiley-IEEE Press **A comprehensive introduction to the exploding field of data mining We are surrounded by data, numerical and otherwise, which must be analyzed and processed to convert it into information that informs, instructs, answers, or otherwise aids understanding and decision-making. Due to the ever-increasing complexity and size of today's data sets, a new term, data mining, was created to describe the indirect, automatic data analysis techniques that utilize more complex and sophisticated tools than those which analysts used in the past to do mere data analysis. Data Mining: Concepts, Models, Methods, and Algorithms discusses data mining principles and then describes representative state-of-the-art methods and algorithms originating from different disciplines such as statistics, machine learning, neural networks, fuzzy logic, and evolutionary computation. Detailed algorithms are provided with necessary explanations and illustrative examples. This text offers guidance: how and when to use a particular software tool (with their companion data sets) from among the hundreds offered when faced with a data set to mine. This allows analysts to create and perform their own data mining experiments using their knowledge of the methodologies and techniques provided. This book emphasizes the selection of appropriate methodologies and data analysis software, as well as parameter tuning. These critically important, qualitative decisions can only be made with the deeper understanding of parameter meaning and its role in the technique that is offered here. Data mining is an exploding field and this book offers much-needed guidance to selecting among the numerous analysis programs that are available.**