

Learning Predictive Analytics With R Packt Publishing

Right here, we have countless ebook Learning Predictive Analytics With R Packt Publishing and collections to check out. We additionally find the money for variant types and along with type of the books to browse. The customary book, fiction, history, novel, scientific research, as without difficulty as various additional sorts of books are readily affable here.

As this Learning Predictive Analytics With R Packt Publishing, it ends taking place beast one of the favored book Learning Predictive Analytics With R Packt Publishing collections that we have. This is why you remain in the best website to see the amazing book to have.

Predictive Analytics with TensorFlow Md. Rezaul Karim 2017-10-26 Accomplish the power of data in your business by building advanced predictive modelling applications with Tensorflow. About This Book* A quick guide to gain hands-on experience with deep learning in different domains such as digit/image classification, and texts* Build your own smart, predictive models with TensorFlow using easy-to-follow approach mentioned in the book* Understand deep learning and predictive analytics along with its challenges and best practices Who This Book Is For This book is intended for anyone who wants to build predictive models with the power of TensorFlow from scratch. If you want to build your own extensive applications which work, and can predict smart decisions in the future then this book is what you need! What You Will Learn* Get a solid and theoretical understanding of linear algebra, statistics, and probability for predictive modeling* Develop predictive models using classification, regression, and clustering algorithms* Develop predictive models for NLP* Learn how to use reinforcement learning for predictive analytics* Factorization Machines for advanced recommendation systems* Get a hands-on understanding of deep learning architectures for advanced predictive analytics* Learn how to use deep Neural Networks for predictive analytics* See how to use recurrent Neural Networks for predictive analytics* Convolutional Neural Networks for emotion recognition, image classification, and sentiment analysis In Detail Predictive analytics discovers hidden patterns from structured and unstructured data for automated decision-making in business intelligence. This book will help you build, tune, and deploy predictive models with TensorFlow in

three main sections. The first section covers linear algebra, statistics, and probability theory for predictive modeling. The second section covers developing predictive models via supervised (classification and regression) and unsupervised (clustering) algorithms. It then explains how to develop predictive models for NLP and covers reinforcement learning algorithms. Lastly, this section covers developing a factorization machines-based recommendation system. The third section covers deep learning architectures for advanced predictive analytics, including deep neural networks and recurrent neural networks for high-dimensional and sequence data. Finally, convolutional neural networks are used for predictive modeling for emotion recognition, image classification, and sentiment analysis. Style and approach TensorFlow, a popular library for machine learning, embraces the innovation and community-engagement of open source, but has the support, guidance, and stability of a large corporation.

Cognitive Intelligence and Big Data in Healthcare D. Sumathi 2022-08-23
COGNITIVE INTELLIGENCE AND BIG DATA IN HEALTHCARE Applications of cognitive intelligence, advanced communication, and computational methods can drive healthcare research and enhance existing traditional methods in disease detection and management and prevention. As health is the foremost factor affecting the quality of human life, it is necessary to understand how the human body is functioning by processing health data obtained from various sources more quickly. Since an enormous amount of data is generated during data processing, a cognitive computing system could be applied to respond to queries, thereby assisting in customizing intelligent recommendations. This decision-making process could be improved by the deployment of cognitive computing techniques in healthcare, allowing for cutting-edge techniques to be integrated into healthcare to provide intelligent services in various healthcare applications. This book tackles all these issues and provides insight into these diversified topics in the healthcare sector and shows the range of recent innovative research, in addition to shedding light on future directions in this area. Audience The book will be very useful to a wide range of specialists including researchers, engineers, and postgraduate students in artificial intelligence, bioinformatics, information technology, as well as those in biomedicine.

R: Predictive Analysis 2017

Business Analytics Using R - A Practical Approach Umesh R Hodeghatta 2016-12-27 Learn the fundamental aspects of the business statistics, data mining, and machine learning techniques required to understand the huge amount of data generated by your organization. This book explains practical business analytics through examples, covers the steps involved in using it correctly, and shows you the context in which a particular technique does not make sense. Further, Practical Business Analytics using R helps you understand specific issues faced by organizations and how the solutions to these issues can be facilitated by business analytics. This book will discuss and explore the following through

examples and case studies: An introduction to R: data management and R functions The architecture, framework, and life cycle of a business analytics project Descriptive analytics using R: descriptive statistics and data cleaning Data mining: classification, association rules, and clustering Predictive analytics: simple regression, multiple regression, and logistic regression This book includes case studies on important business analytic techniques, such as classification, association, clustering, and regression. The R language is the statistical tool used to demonstrate the concepts throughout the book. What You Will Learn • Write R programs to handle data • Build analytical models and draw useful inferences from them • Discover the basic concepts of data mining and machine learning • Carry out predictive modeling • Define a business issue as an analytical problem Who This Book Is For Beginners who want to understand and learn the fundamentals of analytics using R. Students, managers, executives, strategy and planning professionals, software professionals, and BI/DW professionals.

Exploratory Data Analytics for Healthcare R. Lakshmana Kumar 2021-12-24 Exploratory data analysis helps to recognize natural patterns hidden in the data. This book describes the tools for hypothesis generation by visualizing data through graphical representation and provides insight into advanced analytics concepts in an easy way. The book addresses the complete data visualization technologies workflow, explores basic and high-level concepts of computer science and engineering in medical science, and provides an overview of the clinical scientific research areas that enables smart diagnosis equipment. It will discuss techniques and tools used to explore large volumes of medical data and offers case studies that focus on the innovative technological upgradation and challenges faced today. The primary audience for the book includes specialists, researchers, graduates, designers, experts, physicians, and engineers who are doing research in this domain.

Advanced Machine Learning with R Cory Lesmeister 2019-05-20 Master machine learning techniques with real-world projects that interface TensorFlow with R, H2O, MXNet, and other languages Key Features Gain expertise in machine learning, deep learning and other techniques Build intelligent end-to-end projects for finance, social media, and a variety of domains Implement multi-class classification, regression, and clustering Book Description R is one of the most popular languages when it comes to exploring the mathematical side of machine learning and easily performing computational statistics. This Learning Path shows you how to leverage the R ecosystem to build efficient machine learning applications that carry out intelligent tasks within your organization. You'll tackle realistic projects such as building powerful machine learning models with ensembles to predict employee attrition. You'll explore different clustering techniques to segment customers using wholesale data and use TensorFlow and Keras-R for performing advanced computations. You'll also be introduced to reinforcement learning along with its various use cases and models. Additionally,

it shows you how some of these black-box models can be diagnosed and understood. By the end of this Learning Path, you'll be equipped with the skills you need to deploy machine learning techniques in your own projects. This Learning Path includes content from the following Packt products: R Machine Learning Projects by Dr. Sunil Kumar Chinnamgari Mastering Machine Learning with R - Third Edition by Cory Lesmeister What you will learn Develop a joke recommendation engine to recommend jokes that match users' tastes Build autoencoders for credit card fraud detection Work with image recognition and convolutional neural networks Make predictions for casino slot machine using reinforcement learning Implement NLP techniques for sentiment analysis and customer segmentation Produce simple and effective data visualizations for improved insights Use NLP to extract insights for text Implement tree-based classifiers including random forest and boosted tree Who this book is for If you are a data analyst, data scientist, or machine learning developer this is an ideal Learning Path for you. Each project will help you test your skills in implementing machine learning algorithms and techniques. A basic understanding of machine learning and working knowledge of R programming is necessary to get the most out of this Learning Path.

Machine Learning with R Brett Lantz 2015 Perhaps you already know a bit about machine learning but have never used R, or perhaps you know a little R but are new to machine learning. In either case, this book will get you up and running quickly. It would be helpful to have a bit of familiarity with basic programming concepts, but no prior experience is required.

Learning Social Media Analytics with R Raghav Bali 2017-05-26 Tap into the realm of social media and unleash the power of analytics for data-driven insights using R About This Book* A practical guide written to help leverage the power of the R eco-system to extract, process, analyze, visualize and model social media data* Learn about data access, retrieval, cleaning, and curation methods for data originating from various social media platforms.* Visualize and analyze data from social media platforms to understand and model complex relationships using various concepts and techniques such as Sentiment Analysis, Topic Modeling, Text Summarization, Recommendation Systems, Social Network Analysis, Classification, and Clustering. Who This Book Is For It is targeted at IT professionals, Data Scientists, Analysts, Developers, Machine Learning Enthusiasts, social media marketers and anyone with a keen interest in data, analytics, and generating insights from social data. Some background experience in R would be helpful, but not necessary, since this book is written keeping in mind, that readers can have varying levels of expertise. What You Will Learn* Learn how to tap into data from diverse social media platforms using the R ecosystem* Use social media data to formulate and solve real-world problems* Analyze user social networks and communities using concepts from graph theory and network analysis* Learn to detect opinion and sentiment, extract themes, topics, and trends from unstructured noisy text data from diverse

social media channels* Understand the art of representing actionable insights with effective visualizations* Analyze data from major social media channels such as Twitter, Facebook, Flickr, Foursquare, Github, StackExchange, and so on* Learn to leverage popular R packages such as ggplot2, topicmodels, caret, e1071, tm, wordcloud, twittR, Rfacebook, dplyr, reshape2, and many more!

The Internet has truly become humongous, especially with the rise of various forms of social media in the last decade, which give users a platform to express themselves and also communicate and collaborate with each other. This book will help the reader to understand the current social media landscape and to learn how analytics can be leveraged to derive insights from it. This data can be analyzed to gain valuable insights into the behavior and engagement of users, organizations, businesses, and brands. It will help readers frame business problems and solve them using social data. The book will also cover several practical real-world use cases on social media using R and its advanced packages to utilize data science methodologies such as sentiment analysis, topic modeling, text summarization, recommendation systems, social network analysis, classification, and clustering. This will enable readers to learn different hands-on approaches to obtain data from diverse social media sources such as Twitter and Facebook. It will also show readers how to establish detailed workflows to process, visualize, and analyze data to transform social data into actionable insights.

Style and approach This book follows a step-by-step approach with detailed strategies for understanding, extracting, analyzing, visualizing, and modeling data from several major social network platforms such as Facebook, Twitter, Foursquare, Flickr, Github, and StackExchange. The chapters cover several real-world use cases and leverage data science, machine learning, network analysis, and graph theory concepts along with the R ecosystem, including popular packages such as ggplot2, caret, dplyr, topicmodels, tm, and so on.

R Machine Learning By Example Raghav Bali 2016-03-31 Understand the fundamentals of machine learning with R and build your own dynamic algorithms to tackle complicated real-world problems successfully

About This Book Get to grips with the concepts of machine learning through exciting real-world examples

Visualize and solve complex problems by using power-packed R constructs and its robust packages for machine learning

Learn to build your own machine learning system with this example-based practical guide

Who This Book Is For If you are interested in mining useful information from data using state-of-the-art techniques to make data-driven decisions, this is a go-to guide for you. No prior experience with data science is required, although basic knowledge of R is highly desirable. Prior knowledge in machine learning would be helpful but is not necessary.

What You Will Learn Utilize the power of R to handle data extraction, manipulation, and exploration techniques

Use R to visualize data spread across multiple dimensions and extract useful features

Explore the underlying mathematical and logical concepts that drive machine learning algorithms

Dive

deep into the world of analytics to predict situations correctly Implement R machine learning algorithms from scratch and be amazed to see the algorithms in action Write reusable code and build complete machine learning systems from the ground up Solve interesting real-world problems using machine learning and R as the journey unfolds Harness the power of robust and optimized R packages to work on projects that solve real-world problems in machine learning and data science In Detail Data science and machine learning are some of the top buzzwords in the technical world today. From retail stores to Fortune 500 companies, everyone is working hard to making machine learning give them data-driven insights to grow their business. With powerful data manipulation features, machine learning packages, and an active developer community, R empowers users to build sophisticated machine learning systems to solve real-world data problems. This book takes you on a data-driven journey that starts with the very basics of R and machine learning and gradually builds upon the concepts to work on projects that tackle real-world problems. You'll begin by getting an understanding of the core concepts and definitions required to appreciate machine learning algorithms and concepts. Building upon the basics, you will then work on three different projects to apply the concepts of machine learning, following current trends and cover major algorithms as well as popular R packages in detail. These projects have been neatly divided into six different chapters covering the worlds of e-commerce, finance, and social-media, which are at the very core of this data-driven revolution. Each of the projects will help you to understand, explore, visualize, and derive insights depending upon the domain and algorithms. Through this book, you will learn to apply the concepts of machine learning to deal with data-related problems and solve them using the powerful yet simple language, R. Style and approach The book is an enticing journey that starts from the very basics to gradually pick up pace as the story unfolds. Each concept is first defined in the larger context of things succinctly, followed by a detailed explanation of their application. Each topic is explained with the help of a project that solves a real real-world problem involving hands-on work thus giving you a deep insight into the world of machine learning.

Mastering Predictive Analytics with R James D. Miller 2017-08-18 Master the craft of predictive modeling in R by developing strategy, intuition, and a solid foundation in essential concepts About This Book Grasping the major methods of predictive modeling and moving beyond black box thinking to a deeper level of understanding Leveraging the flexibility and modularity of R to experiment with a range of different techniques and data types Packed with practical advice and tips explaining important concepts and best practices to help you understand quickly and easily Who This Book Is For Although budding data scientists, predictive modelers, or quantitative analysts with only basic exposure to R and statistics will find this book to be useful, the experienced data scientist professional wishing to attain master level status , will also find this book extremely valuable.. This book assumes familiarity with the fundamentals of R,

such as the main data types, simple functions, and how to move data around. Although no prior experience with machine learning or predictive modeling is required, there are some advanced topics provided that will require more than novice exposure. What You Will Learn Master the steps involved in the predictive modeling process Grow your expertise in using R and its diverse range of packages Learn how to classify predictive models and distinguish which models are suitable for a particular problem Understand steps for tidying data and improving the performing metrics Recognize the assumptions, strengths, and weaknesses of a predictive model Understand how and why each predictive model works in R Select appropriate metrics to assess the performance of different types of predictive model Explore word embedding and recurrent neural networks in R Train models in R that can work on very large datasets In Detail R offers a free and open source environment that is perfect for both learning and deploying predictive modeling solutions. With its constantly growing community and plethora of packages, R offers the functionality to deal with a truly vast array of problems. The book begins with a dedicated chapter on the language of models and the predictive modeling process. You will understand the learning curve and the process of tidying data. Each subsequent chapter tackles a particular type of model, such as neural networks, and focuses on the three important questions of how the model works, how to use R to train it, and how to measure and assess its performance using real-world datasets. How do you train models that can handle really large datasets? This book will also show you just that. Finally, you will tackle the really important topic of deep learning by implementing applications on word embedding and recurrent neural networks. By the end of this book, you will have explored and tested the most popular modeling techniques in use on real- world datasets and mastered a diverse range of techniques in predictive analytics using R. Style and approach This book takes a step-by-step approach in explaining the intermediate to advanced concepts in predictive analytics. Every concept is explained in depth, supplemented with practical examples applicable in a real-world setting.

R: Predictive Analysis Tony Fischetti 2017-03-31 Master the art of predictive modeling About This Book Load, wrangle, and analyze your data using the world's most powerful statistical programming language Familiarize yourself with the most common data mining tools of R, such as k-means, hierarchical regression, linear regression, Naive Bayes, decision trees, text mining and so on. We emphasize important concepts, such as the bias-variance trade-off and over-fitting, which are pervasive in predictive modeling Who This Book Is For If you work with data and want to become an expert in predictive analysis and modeling, then this Learning Path will serve you well. It is intended for budding and seasoned practitioners of predictive modeling alike. You should have basic knowledge of the use of R, although it's not necessary to put this Learning Path to great use. What You Will Learn Get to know the basics of R's syntax and major data structures Write functions, load data, and install packages Use

different data sources in R and know how to interface with databases, and request and load JSON and XML Identify the challenges and apply your knowledge about data analysis in R to imperfect real-world data Predict the future with reasonably simple algorithms Understand key data visualization and predictive analytic skills using R Understand the language of models and the predictive modeling process In Detail Predictive analytics is a field that uses data to build models that predict a future outcome of interest. It can be applied to a range of business strategies and has been a key player in search advertising and recommendation engines. The power and domain-specificity of R allows the user to express complex analytics easily, quickly, and succinctly. R offers a free and open source environment that is perfect for both learning and deploying predictive modeling solutions in the real world. This Learning Path will provide you with all the steps you need to master the art of predictive modeling with R. We start with an introduction to data analysis with R, and then gradually you'll get your feet wet with predictive modeling. You will get to grips with the fundamentals of applied statistics and build on this knowledge to perform sophisticated and powerful analytics. You will be able to solve the difficulties relating to performing data analysis in practice and find solutions to working with "messy data", large data, communicating results, and facilitating reproducibility. You will then perform key predictive analytics tasks using R, such as train and test predictive models for classification and regression tasks, score new data sets and so on. By the end of this Learning Path, you will have explored and tested the most popular modeling techniques in use on real-world data sets and mastered a diverse range of techniques in predictive analytics. This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: Data Analysis with R, Tony Fischetti Learning Predictive Analytics with R, Eric Mayor Mastering Predictive Analytics with R, Rui Miguel Forte Style and approach Learn data analysis using engaging examples and fun exercises, and with a gentle and friendly but comprehensive "learn-by-doing" approach. This is a practical course, which analyzes compelling data about life, health, and death with the help of tutorials. It offers you a useful way of interpreting the data that's specific to this course, but that can also be applied to any other data. This course is designed to be both a guide and a reference for moving beyond the basics of predictive modeling.

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.

Data Analysis with R Tony Fischetti 2015-12-22 Load, wrangle, and analyze your data using the world's most powerful statistical programming language About This Book Load, manipulate and analyze data from different sources Gain a deeper understanding of fundamentals of applied statistics A practical guide to performing data analysis in practice Who This Book Is For Whether you are learning data analysis for the first time, or you want to deepen the understanding you already have, this book will prove to an invaluable resource. If you are looking for a book to bring you all the way through the fundamentals to the application of advanced and effective analytics methodologies, and have some prior programming experience and a mathematical background, then this is for you. What You Will Learn Navigate the R environment Describe and visualize

the behavior of data and relationships between data Gain a thorough understanding of statistical reasoning and sampling Employ hypothesis tests to draw inferences from your data Learn Bayesian methods for estimating parameters Perform regression to predict continuous variables Apply powerful classification methods to predict categorical data Handle missing data gracefully using multiple imputation Identify and manage problematic data points Employ parallelization and Rcpp to scale your analyses to larger data Put best practices into effect to make your job easier and facilitate reproducibility In Detail Frequently the tool of choice for academics, R has spread deep into the private sector and can be found in the production pipelines at some of the most advanced and successful enterprises. The power and domain-specificity of R allows the user to express complex analytics easily, quickly, and succinctly. With over 7,000 user contributed packages, it's easy to find support for the latest and greatest algorithms and techniques. Starting with the basics of R and statistical reasoning, *Data Analysis with R* dives into advanced predictive analytics, showing how to apply those techniques to real-world data though with real-world examples. Packed with engaging problems and exercises, this book begins with a review of R and its syntax. From there, get to grips with the fundamentals of applied statistics and build on this knowledge to perform sophisticated and powerful analytics. Solve the difficulties relating to performing data analysis in practice and find solutions to working with "messy data", large data, communicating results, and facilitating reproducibility. This book is engineered to be an invaluable resource through many stages of anyone's career as a data analyst. Style and approach Learn data analysis using engaging examples and fun exercises, and with a gentle and friendly but comprehensive "learn-by-doing" approach.

Practical Machine Learning Sunila Gollapudi 2016-01-30 Tackle the real-world complexities of modern machine learning with innovative, cutting-edge, techniques About This Book Fully-coded working examples using a wide range of machine learning libraries and tools, including Python, R, Julia, and Spark Comprehensive practical solutions taking you into the future of machine learning Go a step further and integrate your machine learning projects with Hadoop Who This Book Is For This book has been created for data scientists who want to see machine learning in action and explore its real-world application. With guidance on everything from the fundamentals of machine learning and predictive analytics to the latest innovations set to lead the big data revolution into the future, this is an unmissable resource for anyone dedicated to tackling current big data challenges. Knowledge of programming (Python and R) and mathematics is advisable if you want to get started immediately. What You Will Learn Implement a wide range of algorithms and techniques for tackling complex data Get to grips with some of the most powerful languages in data science, including R, Python, and Julia Harness the capabilities of Spark and Hadoop to manage and process data successfully Apply the appropriate machine learning

technique to address real-world problems Get acquainted with Deep learning and find out how neural networks are being used at the cutting-edge of machine learning Explore the future of machine learning and dive deeper into polyglot persistence, semantic data, and more In Detail Finding meaning in increasingly larger and more complex datasets is a growing demand of the modern world. Machine learning and predictive analytics have become the most important approaches to uncover data gold mines. Machine learning uses complex algorithms to make improved predictions of outcomes based on historical patterns and the behaviour of data sets. Machine learning can deliver dynamic insights into trends, patterns, and relationships within data, immensely valuable to business growth and development. This book explores an extensive range of machine learning techniques uncovering hidden tricks and tips for several types of data using practical and real-world examples. While machine learning can be highly theoretical, this book offers a refreshing hands-on approach without losing sight of the underlying principles. Inside, a full exploration of the various algorithms gives you high-quality guidance so you can begin to see just how effective machine learning is at tackling contemporary challenges of big data. This is the only book you need to implement a whole suite of open source tools, frameworks, and languages in machine learning. We will cover the leading data science languages, Python and R, and the underrated but powerful Julia, as well as a range of other big data platforms including Spark, Hadoop, and Mahout. Practical Machine Learning is an essential resource for the modern data scientists who want to get to grips with its real-world application. With this book, you will not only learn the fundamentals of machine learning but dive deep into the complexities of real world data before moving on to using Hadoop and its wider ecosystem of tools to process and manage your structured and unstructured data. You will explore different machine learning techniques for both supervised and unsupervised learning; from decision trees to Naive Bayes classifiers and linear and clustering methods, you will learn strategies for a truly advanced approach to the statistical analysis of data. The book also explores the cutting-edge advancements in machine learning, with worked examples and guidance on deep learning and reinforcement learning, providing you with practical demonstrations and samples that help take the theory—and mystery—out of even the most advanced machine learning methodologies. Style and approach A practical data science tutorial designed to give you an insight into the practical application of machine learning, this book takes you through complex concepts and tasks in an accessible way. Featuring information on a wide range of data science techniques, Practical Machine Learning is a comprehensive data science resource.

Big Data Analytics with R Simon Walkowiak 2016-07-29 Utilize R to uncover hidden patterns in your Big Data About This Book Perform computational analyses on Big Data to generate meaningful results Get a practical knowledge of R programming language while working on Big Data platforms like Hadoop,

Spark, H2O and SQL/NoSQL databases, Explore fast, streaming, and scalable data analysis with the most cutting-edge technologies in the market Who This Book Is For This book is intended for Data Analysts, Scientists, Data Engineers, Statisticians, Researchers, who want to integrate R with their current or future Big Data workflows. It is assumed that readers have some experience in data analysis and understanding of data management and algorithmic processing of large quantities of data, however they may lack specific skills related to R. What You Will Learn Learn about current state of Big Data processing using R programming language and its powerful statistical capabilities Deploy Big Data analytics platforms with selected Big Data tools supported by R in a cost-effective and time-saving manner Apply the R language to real-world Big Data problems on a multi-node Hadoop cluster, e.g. electricity consumption across various socio-demographic indicators and bike share scheme usage Explore the compatibility of R with Hadoop, Spark, SQL and NoSQL databases, and H2O platform In Detail Big Data analytics is the process of examining large and complex data sets that often exceed the computational capabilities. R is a leading programming language of data science, consisting of powerful functions to tackle all problems related to Big Data processing. The book will begin with a brief introduction to the Big Data world and its current industry standards. With introduction to the R language and presenting its development, structure, applications in real world, and its shortcomings. Book will progress towards revision of major R functions for data management and transformations. Readers will be introduced to Cloud based Big Data solutions (e.g. Amazon EC2 instances and Amazon RDS, Microsoft Azure and its HDInsight clusters) and also provide guidance on R connectivity with relational and non-relational databases such as MongoDB and HBase etc. It will further expand to include Big Data tools such as Apache Hadoop ecosystem, HDFS and MapReduce frameworks. Also other R compatible tools such as Apache Spark, its machine learning library Spark MLlib, as well as H2O. Style and approach This book will serve as a practical guide to tackling Big Data problems using R programming language and its statistical environment. Each section of the book will present you with concise and easy-to-follow steps on how to process, transform and analyse large data sets.

Applied Supervised Learning with R Karthik Ramasubramanian 2019-05-31 Learn the ropes of supervised machine learning with R by studying popular real-world use-cases, and understand how it drives object detection in driverless cars, customer churn, and loan default prediction. Key Features Study supervised learning algorithms by using real-world datasets Fine tune optimal parameters with hyperparameter optimization Select the best algorithm using the model evaluation framework Book Description R provides excellent visualization features that are essential for exploring data before using it in automated learning. Applied Supervised Learning with R helps you cover the complete process of employing R to develop applications using supervised machine

learning algorithms for your business needs. The book starts by helping you develop your analytical thinking to create a problem statement using business inputs and domain research. You will then learn different evaluation metrics that compare various algorithms, and later progress to using these metrics to select the best algorithm for your problem. After finalizing the algorithm you want to use, you will study the hyperparameter optimization technique to fine-tune your set of optimal parameters. To prevent you from overfitting your model, a dedicated section will even demonstrate how you can add various regularization terms. By the end of this book, you will have the advanced skills you need for modeling a supervised machine learning algorithm that precisely fulfills your business needs. What you will learn

- Develop analytical thinking to precisely identify a business problem
- Wrangle data with dplyr, tidyr, and reshape2
- Visualize data with ggplot2
- Validate your supervised machine learning model using k-fold
- Optimize hyperparameters with grid and random search, and Bayesian optimization
- Deploy your model on Amazon Web Services (AWS) Lambda with plumber
- Improve your model's performance with feature selection and dimensionality reduction

Who this book is for This book is specially designed for novice and intermediate-level data analysts, data scientists, and data engineers who want to explore different methods of supervised machine learning and its various use cases. Some background in statistics, probability, calculus, linear algebra, and programming will help you thoroughly understand and follow the content of this book.

Modeling Techniques in Predictive Analytics with Python and R Thomas W. Miller 2014-09-29 Master predictive analytics, from start to finish Start with strategy and management Master methods and build models Transform your models into highly-effective code—in both Python and R This one-of-a-kind book will help you use predictive analytics, Python, and R to solve real business problems and drive real competitive advantage. You'll master predictive analytics through realistic case studies, intuitive data visualizations, and up-to-date code for both Python and R—not complex math. Step by step, you'll walk through defining problems, identifying data, crafting and optimizing models, writing effective Python and R code, interpreting results, and more. Each chapter focuses on one of today's key applications for predictive analytics, delivering skills and knowledge to put models to work—and maximize their value. Thomas W. Miller, leader of Northwestern University's pioneering program in predictive analytics, addresses everything you need to succeed: strategy and management, methods and models, and technology and code. If you're new to predictive analytics, you'll gain a strong foundation for achieving accurate, actionable results. If you're already working in the field, you'll master powerful new skills. If you're familiar with either Python or R, you'll discover how these languages complement each other, enabling you to do even more. All data sets, extensive Python and R code, and additional examples available for download at <http://www.ftpress.com/miller/> Python and R offer immense power in predictive

analytics, data science, and big data. This book will help you leverage that power to solve real business problems, and drive real competitive advantage. Thomas W. Miller's unique balanced approach combines business context and quantitative tools, illuminating each technique with carefully explained code for the latest versions of Python and R. If you're new to predictive analytics, Miller gives you a strong foundation for achieving accurate, actionable results. If you're already a modeler, programmer, or manager, you'll learn crucial skills you don't already have. Using Python and R, Miller addresses multiple business challenges, including segmentation, brand positioning, product choice modeling, pricing research, finance, sports, text analytics, sentiment analysis, and social network analysis. He illuminates the use of cross-sectional data, time series, spatial, and spatio-temporal data. You'll learn why each problem matters, what data are relevant, and how to explore the data you've identified. Miller guides you through conceptually modeling each data set with words and figures; and then modeling it again with realistic code that delivers actionable insights. You'll walk through model construction, explanatory variable subset selection, and validation, mastering best practices for improving out-of-sample predictive performance. Miller employs data visualization and statistical graphics to help you explore data, present models, and evaluate performance. Appendices include five complete case studies, and a detailed primer on modern data science methods. Use Python and R to gain powerful, actionable, profitable insights about: Advertising and promotion Consumer preference and choice Market baskets and related purchases Economic forecasting Operations management Unstructured text and language Customer sentiment Brand and price Sports team performance And much more

Learning Predictive Analytics with R Eric Mayor 2015-09-24 Get to grips with key data visualization and predictive analytic skills using R About This Book • Acquire predictive analytic skills using various tools of R • Make predictions about future events by discovering valuable information from data using R • Comprehensive guidelines that focus on predictive model design with real-world data Who This Book Is For If you are a statistician, chief information officer, data scientist, ML engineer, ML practitioner, quantitative analyst, and student of machine learning, this is the book for you. You should have basic knowledge of the use of R. Readers without previous experience of programming in R will also be able to use the tools in the book. What You Will Learn • Customize R by installing and loading new packages • Explore the structure of data using clustering algorithms • Turn unstructured text into ordered data, and acquire knowledge from the data • Classify your observations using Naive Bayes, k-NN, and decision trees • Reduce the dimensionality of your data using principal component analysis • Discover association rules using Apriori • Understand how statistical distributions can help retrieve information from data using correlations, linear regression, and multilevel regression • Use PMML to deploy the models generated in R In Detail R is statistical software that is used for data analysis. There are two main types of

learning from data: unsupervised learning, where the structure of data is extracted automatically; and supervised learning, where a labeled part of the data is used to learn the relationship or scores in a target attribute. As important information is often hidden in a lot of data, R helps to extract that information with its many standard and cutting-edge statistical functions. This book is packed with easy-to-follow guidelines that explain the workings of the many key data mining tools of R, which are used to discover knowledge from your data. You will learn how to perform key predictive analytics tasks using R, such as train and test predictive models for classification and regression tasks, score new data sets and so on. All chapters will guide you in acquiring the skills in a practical way. Most chapters also include a theoretical introduction that will sharpen your understanding of the subject matter and invite you to go further. The book familiarizes you with the most common data mining tools of R, such as k-means, hierarchical regression, linear regression, association rules, principal component analysis, multilevel modeling, k-NN, Naive Bayes, decision trees, and text mining. It also provides a description of visualization techniques using the basic visualization tools of R as well as lattice for visualizing patterns in data organized in groups. This book is invaluable for anyone fascinated by the data mining opportunities offered by GNU R and its packages. Style and approach This is a practical book, which analyzes compelling data about life, health, and death with the help of tutorials. It offers you a useful way of interpreting the data that's specific to this book, but that can also be applied to any other data.

R Data Analytics Projects Raghav Bali 2018 "With powerful features and packages, R empowers users to build sophisticated machine learning systems to solve real-world data problems. This video course takes you on a data-driven journey that starts with the very basics of R and machine learning. You will then work on three different projects to apply the concepts of machine learning. Each project will help you to understand, explore, visualize, and derive domain- and algorithm-based insights. By the end of this course, you will have learned to apply the concepts of machine learning to data-related problems and solve them with help of R."--Resource description page.

Learning Predictive Analytics with R Eric Mayor 2015-09-24 Get to grips with key data visualization and predictive analytic skills using R About This Book Acquire predictive analytic skills using various tools of R Make predictions about future events by discovering valuable information from data using R Comprehensible guidelines that focus on predictive model design with real-world data Who This Book Is For If you are a statistician, chief information officer, data scientist, ML engineer, ML practitioner, quantitative analyst, and student of machine learning, this is the book for you. You should have basic knowledge of the use of R. Readers without previous experience of programming in R will also be able to use the tools in the book. What You Will Learn Customize R by installing and loading new packages Explore the structure of data using clustering algorithms Turn unstructured text into ordered data, and acquire knowledge from the data

Classify your observations using Naive Bayes, k-NN, and decision trees Reduce the dimensionality of your data using principal component analysis Discover association rules using Apriori Understand how statistical distributions can help retrieve information from data using correlations, linear regression, and multilevel regression Use PMML to deploy the models generated in R In Detail R is statistical software that is used for data analysis. There are two main types of learning from data: unsupervised learning, where the structure of data is extracted automatically; and supervised learning, where a labeled part of the data is used to learn the relationship or scores in a target attribute. As important information is often hidden in a lot of data, R helps to extract that information with its many standard and cutting-edge statistical functions. This book is packed with easy-to-follow guidelines that explain the workings of the many key data mining tools of R, which are used to discover knowledge from your data. You will learn how to perform key predictive analytics tasks using R, such as train and test predictive models for classification and regression tasks, score new data sets and so on. All chapters will guide you in acquiring the skills in a practical way. Most chapters also include a theoretical introduction that will sharpen your understanding of the subject matter and invite you to go further. The book familiarizes you with the most common data mining tools of R, such as k-means, hierarchical regression, linear regression, association rules, principal component analysis, multilevel modeling, k-NN, Naive Bayes, decision trees, and text mining. It also provides a description of visualization techniques using the basic visualization tools of R as well as lattice for visualizing patterns in data organized in groups. This book is invaluable for anyone fascinated by the data mining opportunities offered by GNU R and its packages. Style and approach This is a practical book, which analyzes compelling data about life, health, and death with the help of tutorials. It offers you a useful way of interpreting the data that's specific to this book, but that can also be applied to any other data.

R: Mining spatial, text, web, and social media data Bateer Makhabel 2017-06-19 Create data mining algorithms About This Book Develop a strong strategy to solve predictive modeling problems using the most popular data mining algorithms Real-world case studies will take you from novice to intermediate to apply data mining techniques Deploy cutting-edge sentiment analysis techniques to real-world social media data using R Who This Book Is For This Learning Path is for R developers who are looking to making a career in data analysis or data mining. Those who come across data mining problems of different complexities from web, text, numerical, political, and social media domains will find all information in this single learning path. What You Will Learn Discover how to manipulate data in R Get to know top classification algorithms written in R Explore solutions written in R based on R Hadoop projects Apply data management skills in handling large data sets Acquire knowledge about neural network concepts and their applications in data mining Create predictive models for classification, prediction, and recommendation Use various libraries on R

CRAN for data mining Discover more about data potential, the pitfalls, and inferential gotchas Gain an insight into the concepts of supervised and unsupervised learning Delve into exploratory data analysis Understand the minute details of sentiment analysis In Detail Data mining is the first step to understanding data and making sense of heaps of data. Properly mined data forms the basis of all data analysis and computing performed on it. This learning path will take you from the very basics of data mining to advanced data mining techniques, and will end up with a specialized branch of data mining—social media mining. You will learn how to manipulate data with R using code snippets and how to mine frequent patterns, association, and correlation while working with R programs. You will discover how to write code for various predication models, stream data, and time-series data. You will also be introduced to solutions written in R based on R Hadoop projects. Now that you are comfortable with data mining with R, you will move on to implementing your knowledge with the help of end-to-end data mining projects. You will learn how to apply different mining concepts to various statistical and data applications in a wide range of fields. At this stage, you will be able to complete complex data mining cases and handle any issues you might encounter during projects. After this, you will gain hands-on experience of generating insights from social media data. You will get detailed instructions on how to obtain, process, and analyze a variety of socially-generated data while providing a theoretical background to accurately interpret your findings. You will be shown R code and examples of data that can be used as a springboard as you get the chance to undertake your own analyses of business, social, or political data. This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: Learning Data Mining with R by Bateer Makhabel R Data Mining Blueprints by Pradeepta Mishra Social Media Mining with R by Nathan Danneman and Richard Heimann Style and approach A complete package with which will take you from the basics of data mining to advanced data mining techniques, and will end up with a specialized branch of data mining—social media mining.

Data Analysis with R - Second Edition Tony Fischetti 2018 Learn, by example, the fundamentals of data analysis as well as several intermediate to advanced methods and techniques ranging from classification and regression to Bayesian methods and MCMC, which can be put to immediate use. About This Book Analyze your data using R - the most powerful statistical programming language Learn how to implement applied statistics using practical use-cases Use popular R packages to work with unstructured and structured data Who This Book Is For Budding data scientists and data analysts who are new to the concept of data analysis, or who want to build efficient analytical models in R will find this book to be useful. No prior exposure to data analysis is needed, although a fundamental understanding of the R programming language is required to get the best out of this book. What You Will Learn Gain a thorough understanding of statistical

reasoning and sampling theory Employ hypothesis testing to draw inferences from your data Learn Bayesian methods for estimating parameters Train regression, classification, and time series models Handle missing data gracefully using multiple imputation Identify and manage problematic data points Learn how to scale your analyses to larger data with Rcpp, data.table, dplyr, and parallelization Put best practices into effect to make your job easier and facilitate reproducibility In Detail Frequently the tool of choice for academics, R has spread deep into the private sector and can be found in the production pipelines at some of the most advanced and successful enterprises. The power and domain-specificity of R allows the user to express complex analytics easily, quickly, and succinctly. Starting with the basics of R and statistical reasoning, this book dives into advanced predictive analytics, showing how to apply those techniques to real-world data though with real-world examples. Packed with engaging problems and exercises, this book begins with a review of R and its syntax with packages like Rcpp, ggplot2, and dplyr. From there, get to grips with the fundamentals of applied statistics and build on this knowledge to perform sophisticated and powerful analytics. Solve the difficulties relating to performing data analysis in practice and find solutions to working with messy data, large data, communicating results, and facilitating reproducibility. This book is engineered to be an invaluable resource through many stages of anyone's career as a data analyst. Style and approach An easy ...

Mastering Machine Learning with R Cory Lesmeister 2015-10-28 Master machine learning techniques with R to deliver insights for complex projects About This Book Get to grips with the application of Machine Learning methods using an extensive set of R packages Understand the benefits and potential pitfalls of using machine learning methods Implement the numerous powerful features offered by R with this comprehensive guide to building an independent R-based ML system Who This Book Is For If you want to learn how to use R's machine learning capabilities to solve complex business problems, then this book is for you. Some experience with R and a working knowledge of basic statistical or machine learning will prove helpful. What You Will Learn Gain deep insights to learn the applications of machine learning tools to the industry Manipulate data in R efficiently to prepare it for analysis Master the skill of recognizing techniques for effective visualization of data Understand why and how to create test and training data sets for analysis Familiarize yourself with fundamental learning methods such as linear and logistic regression Comprehend advanced learning methods such as support vector machines Realize why and how to apply unsupervised learning methods In Detail Machine learning is a field of Artificial Intelligence to build systems that learn from data. Given the growing prominence of R—a cross-platform, zero-cost statistical programming environment—there has never been a better time to start applying machine learning to your data. The book starts with introduction to Cross-Industry Standard Process for Data Mining. It takes you through Multivariate

Regression in detail. Moving on, you will also address Classification and Regression trees. You will learn a couple of “Unsupervised techniques”. Finally, the book will walk you through text analysis and time series. The book will deliver practical and real-world solutions to problems and variety of tasks such as complex recommendation systems. By the end of this book, you will gain expertise in performing R machine learning and will be able to build complex ML projects using R and its packages. Style and approach This is a book explains complicated concepts with easy to follow theory and real-world, practical applications. It demonstrates the power of R and machine learning extensively while highlighting the constraints.

Applied Big Data Analytics and Its Role in COVID-19 Research Zhao, Peng 2022-04-29 There has been a multitude of studies focused on the COVID-19 pandemic across fields and disciplines as all sectors of life have had to adjust the way things are done and adapt to the constantly shifting environment. These studies are crucial as they provide support and perspectives on how things are changing and what needs to be done to stay afloat. Connecting COVID-19-related studies and big data analytics is crucial for the advancement of industrial applications and research areas. Applied Big Data Analytics and Its Role in COVID-19 Research introduces the most recent industrial applications and research topics on COVID-19 with big data analytics. Featuring coverage on a broad range of big data technologies such as data gathering, artificial intelligence, smart diagnostics, and mining mobility, this publication provides concrete examples and cases of usage of data-driven projects in COVID-19 research. This reference work is a vital resource for data scientists, technical managers, researchers, scholars, practitioners, academicians, instructors, and students.

R Data Analysis Projects Gopi Subramanian 2017-11-17 Get valuable insights from your data by building data analysis systems from scratch with R. About This Book A handy guide to take your understanding of data analysis with R to the next level Real-world projects that focus on problems in finance, network analysis, social media, and more From data manipulation to analysis to visualization in R, this book will teach you everything you need to know about building end-to-end data analysis pipelines using R Who This Book Is For If you are looking for a book that takes you all the way through the practical application of advanced and effective analytics methodologies in R, then this is the book for you. A fundamental understanding of R and the basic concepts of data analysis is all you need to get started with this book. What You Will Learn Build end-to-end predictive analytics systems in R Build an experimental design to gather your own data and conduct analysis Build a recommender system from scratch using different approaches Use and leverage RShiny to build reactive programming applications Build systems for varied domains including market research, network analysis, social media analysis, and more Explore various R Packages such as RShiny, ggplot, recommenderlab, dplyr, and find out how to

use them effectively Communicate modeling results using Shiny Dashboards Perform multi-variate time-series analysis prediction, supplemented with sensitivity analysis and risk modeling In Detail R offers a large variety of packages and libraries for fast and accurate data analysis and visualization. As a result, it's one of the most popularly used languages by data scientists and analysts, or anyone who wants to perform data analysis. This book will demonstrate how you can put to use your existing knowledge of data analysis in R to build highly efficient, end-to-end data analysis pipelines without any hassle. You'll start by building a content-based recommendation system, followed by building a project on sentiment analysis with tweets. You'll implement time-series modeling for anomaly detection, and understand cluster analysis of streaming data. You'll work through projects on performing efficient market data research, building recommendation systems, and analyzing networks accurately, all provided with easy to follow codes. With the help of these real-world projects, you'll get a better understanding of the challenges faced when building data analysis pipelines, and see how you can overcome them without compromising on the efficiency or accuracy of your systems. The book covers some popularly used R packages such as dplyr, ggplot2, RShiny, and others, and includes tips on using them effectively. By the end of this book, you'll have a better understanding of data analysis with R, and be able to put your knowledge to practical use without any hassle. Style and approach This book takes a unique, learn-as-you-do approach, as you build on your understanding of data analysis progressively with each project. This book is designed in a way that implementing each project will empower you with a unique skill set, and enable you to implement the next project more confidently.

Predictive Analytics Using Rattle and Qlik Sense Ferran Garcia Pagans 2015-06-30 Qlik Sense Desktop, the personal and free version of Qlik Sense, is a powerful tool for business analysts to analyze data and create useful data applications. Rattle, developed in R, is a GUI used for data mining and complements Qlik Sense Desktop very well. By combining Rattle and Qlik Sense Desktop, a business user can learn how to apply predictive analytics to create real-world data applications. The objective is to use Qlik Sense to analyze data and complement it with predictive analytics using Rattle. This book will introduce you to basic predictive analysis techniques using Rattle and basic data visualizations concepts using Qlik Sense Desktop. You will start by setting up Qlik Sense Desktop, R, and Rattle and learn the basic of these tools. Then this book will examine the data and make it ready to be analyzed. After that, you will get to know the key concepts of predictive analytics, by building simple models with Rattle and creating visualizations with Qlik Sense Desktop. Finally, the book will show you the basics of data visualization and will help you to create your first data application and dashboard.

Mastering Python for Data Science Samir Madhavan 2015-08-31 Explore the world of data science through Python and learn how to make sense of data

About This Book Master data science methods using Python and its libraries Create data visualizations and mine for patterns Advanced techniques for the four fundamentals of Data Science with Python - data mining, data analysis, data visualization, and machine learning Who This Book Is For If you are a Python developer who wants to master the world of data science then this book is for you. Some knowledge of data science is assumed. What You Will Learn Manage data and perform linear algebra in Python Derive inferences from the analysis by performing inferential statistics Solve data science problems in Python Create high-end visualizations using Python Evaluate and apply the linear regression technique to estimate the relationships among variables. Build recommendation engines with the various collaborative filtering algorithms Apply the ensemble methods to improve your predictions Work with big data technologies to handle data at scale In Detail Data science is a relatively new knowledge domain which is used by various organizations to make data driven decisions. Data scientists have to wear various hats to work with data and to derive value from it. The Python programming language, beyond having conquered the scientific community in the last decade, is now an indispensable tool for the data science practitioner and a must-know tool for every aspiring data scientist. Using Python will offer you a fast, reliable, cross-platform, and mature environment for data analysis, machine learning, and algorithmic problem solving. This comprehensive guide helps you move beyond the hype and transcend the theory by providing you with a hands-on, advanced study of data science. Beginning with the essentials of Python in data science, you will learn to manage data and perform linear algebra in Python. You will move on to deriving inferences from the analysis by performing inferential statistics, and mining data to reveal hidden patterns and trends. You will use the matplotlib library to create high-end visualizations in Python and uncover the fundamentals of machine learning. Next, you will apply the linear regression technique and also learn to apply the logistic regression technique to your applications, before creating recommendation engines with various collaborative filtering algorithms and improving your predictions by applying the ensemble methods. Finally, you will perform K-means clustering, along with an analysis of unstructured data with different text mining techniques and leveraging the power of Python in big data analytics. Style and approach This book is an easy-to-follow, comprehensive guide on data science using Python. The topics covered in the book can all be used in real world scenarios.

Practical Data Analysis Cookbook Tomasz Drabas 2016-04-29 Over 60 practical recipes on data exploration and analysis About This Book Clean dirty data, extract accurate information, and explore the relationships between variables Forecast the output of an electric plant and the water flow of American rivers using pandas, NumPy, Statsmodels, and scikit-learn Find and extract the most important features from your dataset using the most efficient Python libraries Who This Book Is For If you are a beginner or intermediate-level professional

who is looking to solve your day-to-day, analytical problems with Python, this book is for you. Even with no prior programming and data analytics experience, you will be able to finish each recipe and learn while doing so. What You Will Learn

- Read, clean, transform, and store your data using Pandas and OpenRefine
- Understand your data and explore the relationships between variables using Pandas and D3.js
- Explore a variety of techniques to classify and cluster outbound marketing campaign calls data of a bank using Pandas, mlpy, NumPy, and Statsmodels
- Reduce the dimensionality of your dataset and extract the most important features with pandas, NumPy, and mlpy
- Predict the output of a power plant with regression models and forecast water flow of American rivers with time series methods using pandas, NumPy, Statsmodels, and scikit-learn
- Explore social interactions and identify fraudulent activities with graph theory concepts using NetworkX and Gephi
- Scrape Internet web pages using urllib and BeautifulSoup and get to know natural language processing techniques to classify movies ratings using NLTK
- Study simulation techniques in an example of a gas station with agent-based modeling

In Detail Data analysis is the process of systematically applying statistical and logical techniques to describe and illustrate, condense and recap, and evaluate data. Its importance has been most visible in the sector of information and communication technologies. It is an employee asset in almost all economy sectors. This book provides a rich set of independent recipes that dive into the world of data analytics and modeling using a variety of approaches, tools, and algorithms. You will learn the basics of data handling and modeling, and will build your skills gradually toward more advanced topics such as simulations, raw text processing, social interactions analysis, and more. First, you will learn some easy-to-follow practical techniques on how to read, write, clean, reformat, explore, and understand your data—arguably the most time-consuming (and the most important) tasks for any data scientist. In the second section, different independent recipes delve into intermediate topics such as classification, clustering, predicting, and more. With the help of these easy-to-follow recipes, you will also learn techniques that can easily be expanded to solve other real-life problems such as building recommendation engines or predictive models. In the third section, you will explore more advanced topics: from the field of graph theory through natural language processing, discrete choice modeling to simulations. You will also get to expand your knowledge on identifying fraud origin with the help of a graph, scrape Internet websites, and classify movies based on their reviews. By the end of this book, you will be able to efficiently use the vast array of tools that the Python environment has to offer. Style and approach This hands-on recipe guide is divided into three sections that tackle and overcome real-world data modeling problems faced by data analysts/scientist in their everyday work. Each independent recipe is written in an easy-to-follow and step-by-step fashion.

Data Science and Predictive Analytics Ivo D. Dinov 2018-08-27 Over the past decade, Big Data have become ubiquitous in all economic sectors, scientific

disciplines, and human activities. They have led to striking technological advances, affecting all human experiences. Our ability to manage, understand, interrogate, and interpret such extremely large, multisource, heterogeneous, incomplete, multiscale, and incongruent data has not kept pace with the rapid increase of the volume, complexity and proliferation of the deluge of digital information. There are three reasons for this shortfall. First, the volume of data is increasing much faster than the corresponding rise of our computational processing power (Kryder's law $>$ Moore's law). Second, traditional discipline-bounds inhibit expeditious progress. Third, our education and training activities have fallen behind the accelerated trend of scientific, information, and communication advances. There are very few rigorous instructional resources, interactive learning materials, and dynamic training environments that support active data science learning. The textbook balances the mathematical foundations with dexterous demonstrations and examples of data, tools, modules and workflows that serve as pillars for the urgently needed bridge to close that supply and demand predictive analytic skills gap. Exposing the enormous opportunities presented by the tsunami of Big data, this textbook aims to identify specific knowledge gaps, educational barriers, and workforce readiness deficiencies. Specifically, it focuses on the development of a transdisciplinary curriculum integrating modern computational methods, advanced data science techniques, innovative biomedical applications, and impactful health analytics. The content of this graduate-level textbook fills a substantial gap in integrating modern engineering concepts, computational algorithms, mathematical optimization, statistical computing and biomedical inference. Big data analytic techniques and predictive scientific methods demand broad transdisciplinary knowledge, appeal to an extremely wide spectrum of readers/learners, and provide incredible opportunities for engagement throughout the academy, industry, regulatory and funding agencies. The two examples below demonstrate the powerful need for scientific knowledge, computational abilities, interdisciplinary expertise, and modern technologies necessary to achieve desired outcomes (improving human health and optimizing future return on investment). This can only be achieved by appropriately trained teams of researchers who can develop robust decision support systems using modern techniques and effective end-to-end protocols, like the ones described in this textbook.

- A geriatric neurologist is examining a patient complaining of gait imbalance and posture instability. To determine if the patient may suffer from Parkinson's disease, the physician acquires clinical, cognitive, phenotypic, imaging, and genetics data (Big Data). Most clinics and healthcare centers are not equipped with skilled data analytic teams that can wrangle, harmonize and interpret such complex datasets. A learner that completes a course of study using this textbook will have the competency and ability to manage the data, generate a protocol for deriving biomarkers, and provide an actionable decision support system. The results of this protocol will help the physician understand

the entire patient dataset and assist in making a holistic evidence-based, data-driven, clinical diagnosis. • To improve the return on investment for their shareholders, a healthcare manufacturer needs to forecast the demand for their product subject to environmental, demographic, economic, and bio-social sentiment data (Big Data). The organization's data-analytics team is tasked with developing a protocol that identifies, aggregates, harmonizes, models and analyzes these heterogeneous data elements to generate a trend forecast. This system needs to provide an automated, adaptive, scalable, and reliable prediction of the optimal investment, e.g., R&D allocation, that maximizes the company's bottom line. A reader that complete a course of study using this textbook will be able to ingest the observed structured and unstructured data, mathematically represent the data as a computable object, apply appropriate model-based and model-free prediction techniques. The results of these techniques may be used to forecast the expected relation between the company's investment, product supply, general demand of healthcare (providers and patients), and estimate the return on initial investments.

Learning Predictive Analytics with Python Ashish Kumar 2016-02-15 Gain practical insights into predictive modelling by implementing Predictive Analytics algorithms on public datasets with Python About This Book A step-by-step guide to predictive modeling including lots of tips, tricks, and best practices Get to grips with the basics of Predictive Analytics with Python Learn how to use the popular predictive modeling algorithms such as Linear Regression, Decision Trees, Logistic Regression, and Clustering Who This Book Is For If you wish to learn how to implement Predictive Analytics algorithms using Python libraries, then this is the book for you. If you are familiar with coding in Python (or some other programming/statistical/scripting language) but have never used or read about Predictive Analytics algorithms, this book will also help you. The book will be beneficial to and can be read by any Data Science enthusiasts. Some familiarity with Python will be useful to get the most out of this book, but it is certainly not a prerequisite. What You Will Learn Understand the statistical and mathematical concepts behind Predictive Analytics algorithms and implement Predictive Analytics algorithms using Python libraries Analyze the result parameters arising from the implementation of Predictive Analytics algorithms Write Python modules/functions from scratch to execute segments or the whole of these algorithms Recognize and mitigate various contingencies and issues related to the implementation of Predictive Analytics algorithms Get to know various methods of importing, cleaning, sub-setting, merging, joining, concatenating, exploring, grouping, and plotting data with pandas and numpy Create dummy datasets and simple mathematical simulations using the Python numpy and pandas libraries Understand the best practices while handling datasets in Python and creating predictive models out of them In Detail Social Media and the Internet of Things have resulted in an avalanche of data. Data is powerful but not in its raw form - It needs to be processed and modeled, and Python is one of the

most robust tools out there to do so. It has an array of packages for predictive modeling and a suite of IDEs to choose from. Learning to predict who would win, lose, buy, lie, or die with Python is an indispensable skill set to have in this data age. This book is your guide to getting started with Predictive Analytics using Python. You will see how to process data and make predictive models from it. We balance both statistical and mathematical concepts, and implement them in Python using libraries such as pandas, scikit-learn, and numpy. You'll start by getting an understanding of the basics of predictive modeling, then you will see how to cleanse your data of impurities and get it ready for predictive modeling. You will also learn more about the best predictive modeling algorithms such as Linear Regression, Decision Trees, and Logistic Regression. Finally, you will see the best practices in predictive modeling, as well as the different applications of predictive modeling in the modern world. Style and approach All the concepts in this book have been explained and illustrated using a dataset, and in a step-by-step manner. The Python code snippet to implement a method or concept is followed by the output, such as charts, dataset heads, pictures, and so on. The statistical concepts are explained in detail wherever required.

Python: Advanced Predictive Analytics Joseph Babcock 2017-12-27 Gain practical insights by exploiting data in your business to build advanced predictive modeling applications About This Book A step-by-step guide to predictive modeling including lots of tips, tricks, and best practices Learn how to use popular predictive modeling algorithms such as Linear Regression, Decision Trees, Logistic Regression, and Clustering Master open source Python tools to build sophisticated predictive models Who This Book Is For This book is designed for business analysts, BI analysts, data scientists, or junior level data analysts who are ready to move on from a conceptual understanding of advanced analytics and become an expert in designing and building advanced analytics solutions using Python. If you are familiar with coding in Python (or some other programming/statistical/scripting language) but have never used or read about predictive analytics algorithms, this book will also help you. What You Will Learn Understand the statistical and mathematical concepts behind predictive analytics algorithms and implement them using Python libraries Get to know various methods for importing, cleaning, sub-setting, merging, joining, concatenating, exploring, grouping, and plotting data with pandas and NumPy Master the use of Python notebooks for exploratory data analysis and rapid prototyping Get to grips with applying regression, classification, clustering, and deep learning algorithms Discover advanced methods to analyze structured and unstructured data Visualize the performance of models and the insights they produce Ensure the robustness of your analytic applications by mastering the best practices of predictive analysis In Detail Social Media and the Internet of Things have resulted in an avalanche of data. Data is powerful but not in its raw form; it needs to be processed and modeled, and Python is one of the most robust tools out there to do so. It has an array of packages for predictive

modeling and a suite of IDEs to choose from. Using the Python programming language, analysts can use these sophisticated methods to build scalable analytic applications. This book is your guide to getting started with predictive analytics using Python. You'll balance both statistical and mathematical concepts, and implement them in Python using libraries such as pandas, scikit-learn, and NumPy. Through case studies and code examples using popular open-source Python libraries, this book illustrates the complete development process for analytic applications. Covering a wide range of algorithms for classification, regression, clustering, as well as cutting-edge techniques such as deep learning, this book illustrates explains how these methods work. You will learn to choose the right approach for your problem and how to develop engaging visualizations to bring to life the insights of predictive modeling. Finally, you will learn best practices in predictive modeling, as well as the different applications of predictive modeling in the modern world. The course provides you with highly practical content from the following Packt books: 1. Learning Predictive Analytics with Python 2. Mastering Predictive Analytics with Python

Style and approach This course aims to create a smooth learning path that will teach you how to effectively perform predictive analytics using Python. Through this comprehensive course, you'll learn the basics of predictive analytics and progress to predictive modeling in the modern world.

Big Data Analytics with R and Hadoop Vignesh Prajapati 2013-11-25 Big Data Analytics with R and Hadoop is a tutorial style book that focuses on all the powerful big data tasks that can be achieved by integrating R and Hadoop. This book is ideal for R developers who are looking for a way to perform big data analytics with Hadoop. This book is also aimed at those who know Hadoop and want to build some intelligent applications over Big data with R packages. It would be helpful if readers have basic knowledge of R.

STATISTICS FOR MACHINE LEARNING - PRATAP. DANGETI 2019

R Viswa Viswanathan 2017-06-27

Machine Learning with R Brett Lantz 2015-07-31 Updated and upgraded to the latest libraries and most modern thinking, Machine Learning with R, Second Edition provides you with a rigorous introduction to this essential skill of professional data science. Without shying away from technical theory, it is written to provide focused and practical knowledge to get you building algorithms and crunching your data, with minimal previous experience. With this book, you'll discover all the analytical tools you need to gain insights from complex data and learn how to choose the correct algorithm for your specific needs. Through full engagement with the sort of real-world problems data-wrangers face, you'll learn to apply machine learning methods to deal with common tasks, including classification, prediction, forecasting, market analysis, and clustering.

Big Data Analytics in Cognitive Social Media and Literary Texts Sanjiv Sharma 2021-11-11 This book provides a comprehensive overview of the theory and praxis of Big Data Analytics and how these are used to extract cognition-related

information from social media and literary texts. It presents analytics that transcends the borders of discipline-specific academic research and focuses on knowledge extraction, prediction, and decision-making in the context of individual, social, and national development. The content is divided into three main sections: the first of which discusses various approaches associated with Big Data Analytics, while the second addresses the security and privacy of big data in social media, and the last focuses on the literary text as the literary data in Big Data Analytics. Sharing valuable insights into the etiology behind human cognition and its reflection in social media and literary texts, the book benefits all those interested in analytics that can be applied to literature, history, philosophy, linguistics, literary theory, media & communication studies and computational/digital humanities.

Challenges and Applications of Data Analytics in Social Perspectives

Sathiyamoorthi, V. 2020-12-04 With exponentially increasing amounts of data accumulating in real-time, there is no reason why one should not turn data into a competitive advantage. While machine learning, driven by advancements in artificial intelligence, has made great strides, it has not been able to surpass a number of challenges that still prevail in the way of better success. Such limitations as the lack of better methods, deeper understanding of problems, and advanced tools are hindering progress. Challenges and Applications of Data Analytics in Social Perspectives provides innovative insights into the prevailing challenges in data analytics and its application on social media and focuses on various machine learning and deep learning techniques in improving practice and research. The content within this publication examines topics that include collaborative filtering, data visualization, and edge computing. It provides research ideal for data scientists, data analysts, IT specialists, website designers, e-commerce professionals, government officials, software engineers, social media analysts, industry professionals, academicians, researchers, and students.

R Machine Learning by Example Raghav Bali 2016-03-28 Understand the fundamentals of machine learning with R and build your own dynamic algorithms to tackle complicated real-world problems successfully About This Book- Get to grips with the concepts of machine learning through exciting real-world examples- Visualize and solve complex problems by using power-packed R constructs and its robust packages for machine learning- Learn to build your own machine learning system with this example-based practical guide Who This Book Is For If you are interested in mining useful information from data using state-of-the-art techniques to make data-driven decisions, this is a go-to guide for you. No prior experience with data science is required, although basic knowledge of R is highly desirable. Prior knowledge in machine learning would be helpful but is not necessary. What You Will Learn- Utilize the power of R to handle data extraction, manipulation, and exploration techniques- Use R to visualize data spread across multiple dimensions and extract useful features- Explore the

underlying mathematical and logical concepts that drive machine learning algorithms- Dive deep into the world of analytics to predict situations correctly- Implement R machine learning algorithms from scratch and be amazed to see the algorithms in action- Write reusable code and build complete machine learning systems from the ground up- Solve interesting real-world problems using machine learning and R as the journey unfolds- Harness the power of robust and optimized R packages to work on projects that solve real-world problems in machine learning and data science

Data science and machine learning are some of the top buzzwords in the technical world today. From retail stores to Fortune 500 companies, everyone is working hard to making machine learning give them data-driven insights to grow their business. With powerful data manipulation features, machine learning packages, and an active developer community, R empowers users to build sophisticated machine learning systems to solve real-world data problems. This book takes you on a data-driven journey that starts with the very basics of R and machine learning and gradually builds upon the concepts to work on projects that tackle real-world problems. You'll begin by getting an understanding of the core concepts and definitions required to appreciate machine learning algorithms and concepts. Building upon the basics, you will then work on three different projects to apply the concepts of machine learning, following current trends and cover major algorithms as well as popular R packages in detail. These projects have been neatly divided into six different chapters covering the worlds of e-commerce, finance, and social-media, which are at the very core of this data-driven revolution. Each of the projects will help you to understand, explore, visualize, and derive insights depending upon the domain and algorithms. Through this book, you will learn to apply the concepts of machine learning to deal with data-related problems and solve them using the powerful yet simple language, R.

Style and approach The book is an enticing journey that starts from the very basics to gradually pick up pace as the story unfolds. Each concept is first defined in the larger context of things succinctly, followed by a detailed explanation of their application. Each topic is explained with the help of a project that solves a real real-world problem involving hands-on work thus giving you a deep insight into the world of machine learning.

Python: Data Analytics and Visualization **Phuong Vo.T.H** 2017-03-31

Understand, evaluate, and visualize data

About This Book Learn basic steps of data analysis and how to use Python and its packages A step-by-step guide to predictive modeling including tips, tricks, and best practices Effectively visualize a broad set of analyzed data and generate effective results

Who This Book Is For This book is for Python Developers who are keen to get into data analysis and wish to visualize their analyzed data in a more efficient and insightful manner.

What You Will Learn Get acquainted with NumPy and use arrays and array-oriented computing in data analysis Process and analyze data using the time-series capabilities of Pandas Understand the statistical and mathematical

concepts behind predictive analytics algorithms Data visualization with Matplotlib Interactive plotting with NumPy, Scipy, and MKL functions Build financial models using Monte-Carlo simulations Create directed graphs and multi-graphs Advanced visualization with D3 In Detail You will start the course with an introduction to the principles of data analysis and supported libraries, along with NumPy basics for statistics and data processing. Next, you will overview the Pandas package and use its powerful features to solve data-processing problems. Moving on, you will get a brief overview of the Matplotlib API .Next, you will learn to manipulate time and data structures, and load and store data in a file or database using Python packages. You will learn how to apply powerful packages in Python to process raw data into pure and helpful data using examples. You will also get a brief overview of machine learning algorithms, that is, applying data analysis results to make decisions or building helpful products such as recommendations and predictions using Scikit-learn. After this, you will move on to a data analytics specialization—predictive analytics. Social media and IOT have resulted in an avalanche of data. You will get started with predictive analytics using Python. You will see how to create predictive models from data. You will get balanced information on statistical and mathematical concepts, and implement them in Python using libraries such as Pandas, scikit-learn, and NumPy. You'll learn more about the best predictive modeling algorithms such as Linear Regression, Decision Tree, and Logistic Regression. Finally, you will master best practices in predictive modeling. After this, you will get all the practical guidance you need to help you on the journey to effective data visualization. Starting with a chapter on data frameworks, which explains the transformation of data into information and eventually knowledge, this path subsequently cover the complete visualization process using the most popular Python libraries with working examples This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: Getting Started with Python Data Analysis, Phuong Vo.T.H &Martin Czygan Learning Predictive Analytics with Python, Ashish Kumar Mastering Python Data Visualization, Kirthi Raman Style and approach The course acts as a step-by-step guide to get you familiar with data analysis and the libraries supported by Python with the help of real-world examples and datasets. It also helps you gain practical insights into predictive modeling by implementing predictive-analytics algorithms on public datasets with Python. The course offers a wealth of practical guidance to help you on this journey to data visualization

Advanced Computing and Intelligent Engineering Bibudhendu Pati 2020-03-26

This book gathers high-quality research papers presented at the 3rd International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2018). It includes sections describing technical advances and the latest research in the fields of computing and intelligent engineering. Intended for graduate students and researchers working in the disciplines of computer

science and engineering, the proceedings will also appeal to researchers in the field of electronics, as they cover hardware technologies and future communication technologies.

learning-predictive-analytics-with-r-packt-
publishing

Downloaded from
duurzaam.centrumnijmegen.nl on October 5,
2022 by guest