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R Machine Learning Projects - Dr. Sunil Kumar Chinnamgari
2019-01-14

Master a range of machine learning domains with real-world projects using TensorFlow for R, H2O, MXNet, and more Key Features Master machine learning, deep learning, and predictive modeling concepts in R 3.5 Build intelligent end-to-end projects for finance, retail, social media, and a variety of domains Implement smart cognitive models with helpful tips and best practices Book Description R is one of the most popular languages when it comes to performing computational statistics (statistical computing) easily and exploring the mathematical side of machine learning. With this book, you will leverage the R ecosystem to build efficient machine learning applications that carry out intelligent tasks within your organization. This book will help you test your knowledge and skills, guiding you on how to build easily through to complex machine learning projects. You will first learn how to build powerful machine learning models with ensembles to predict employee attrition. Next, you'll implement a joke recommendation engine and learn how to perform sentiment analysis on Amazon reviews. You'll also explore different clustering techniques to segment customers using wholesale data. In addition to this, the book will get you acquainted with credit card fraud detection using autoencoders, and reinforcement learning to make predictions and win on a casino slot machine. By the end of the book, you will be equipped to confidently perform complex tasks to build research and commercial projects for automated operations. What you will learn Explore deep neural networks and various frameworks that can be used in R Develop a joke recommendation engine to recommend jokes that match users' tastes Create powerful ML models with ensembles to predict employee attrition 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 Who this book is for If you're a data analyst, data scientist, or machine learning developer who wants to master machine learning concepts using R by building real-world projects, this is the book 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 book.

Machine Learning with R - Brett Lantz 2019-04-15

Solve real-world data problems with R and machine learning Key Features Third edition of the bestselling, widely acclaimed R machine learning book, updated and improved for R 3.6 and beyond Harness the power of R to build flexible, effective, and transparent machine learning models Learn quickly with a clear, hands-on guide by experienced machine learning teacher and practitioner, Brett Lantz Book Description Machine learning, at its core, is concerned with transforming data into actionable knowledge. R offers a powerful set of machine learning methods to quickly and easily gain insight from your data. Machine Learning with R, Third Edition provides a hands-on, readable guide to applying machine learning to real-world problems. Whether you are an experienced R user or new to the language, Brett Lantz teaches you everything you need to uncover key insights, make new predictions, and visualize your findings. This new 3rd edition updates the classic R data science book to R 3.6 with newer and better libraries, advice on ethical and bias issues in machine learning, and an introduction to deep learning. Find powerful new insights in your data; discover machine learning with R. What you will learn Discover the origins of machine learning and how exactly a computer learns by example Prepare your data for machine learning work with the R programming language Classify important outcomes using nearest neighbor and Bayesian methods Predict future events using decision trees, rules, and support vector machines Forecast numeric data and estimate financial values using regression methods Model complex processes with artificial neural networks — the

basis of deep learning Avoid bias in machine learning models Evaluate your models and improve their performance Connect R to SQL databases and emerging big data technologies such as Spark, H2O, and TensorFlow Who this book is for Data scientists, students, and other practitioners who want a clear, accessible guide to machine learning with R.

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.

Hands-On Data Science with R - Vitor Bianchi Lanzetta 2018-11-30

A hands-on guide for professionals to perform various data science tasks in R Key Features Explore the popular R packages for data science Use R for efficient data mining, text analytics and feature engineering Become a thorough data science professional with the help of hands-on examples and use-cases in R Book Description R is the most widely used programming language, and when used in association with data science, this powerful combination will solve the complexities involved with unstructured datasets in the real world. This book covers the entire data science ecosystem for aspiring data scientists, right from zero to a level where you are confident enough to get hands-on with real-world data science problems. The book starts with an introduction to data science and introduces readers to popular R libraries for executing data science routine tasks. This book covers all the important processes in data science such as data gathering, cleaning data, and then uncovering patterns from it. You will explore algorithms such as machine learning algorithms, predictive analytical models, and finally deep learning algorithms. You will learn to run the most powerful visualization packages available in R so as

to ensure that you can easily derive insights from your data. Towards the end, you will also learn how to integrate R with Spark and Hadoop and perform large-scale data analytics without much complexity. What you will learn

Understand the R programming language and its ecosystem of packages for data science

Obtain and clean your data before processing

Master essential exploratory techniques for summarizing data

Examine various machine learning prediction, models

Explore the H2O analytics platform in R for deep learning

Apply data mining techniques to available datasets

Work with interactive visualization packages in R

Integrate R with Spark and Hadoop for large-scale data analytics

Who this book is for

If you are a budding data scientist keen to learn about the popular pandas library, or a Python developer looking to step into the world of data analysis, this book is the ideal resource you need to get started. Some programming experience in Python will be helpful to get the most out of this course

R: Data Analysis and Visualization - Tony Fischetti 2016-06-24

Master the art of building analytical models using R

About This Book

Load, wrangle, and analyze your data using the world's most powerful statistical programming language

Build and customize publication-quality visualizations of powerful and stunning R graphs

Develop key skills and techniques with R to create and customize data mining algorithms

Use R to optimize your trading strategy and build up your own risk management system

Discover how to build machine learning algorithms, prepare data, and dig deep into data prediction techniques with R

Who This Book Is For

This course is for data scientist or quantitative analyst who are looking at learning R and take advantage of its powerful analytical design framework. It's a seamless journey in becoming a full-stack R developer.

What You Will Learn

Describe and visualize the behavior of data and relationships between data

Gain a thorough understanding of statistical reasoning and sampling

Handle missing data gracefully using multiple imputation

Create diverse types of bar charts using the default R functions

Familiarize yourself with algorithms written in R for spatial data mining, text mining, and so on

Understand relationships between market factors and their impact on your portfolio

Harness the power of R to build machine learning algorithms with real-world data science applications

Learn specialized machine learning techniques for text mining, big data, and more

In Detail

The R learning path created for you has five connected modules, which are a mini-course in their own right. As you complete each one, you'll have gained key skills and be ready for the material in the next module!

This course begins by looking at the Data Analysis with R module. This will help you navigate the R environment. You'll gain a thorough understanding of statistical reasoning and sampling. Finally, you'll be able to put best practices into effect to make your job easier and facilitate reproducibility.

The second place to explore is R Graphs, which will help you leverage powerful default R graphics and utilize advanced graphics systems such as lattice and ggplot2, the grammar of graphics. You'll learn how to produce, customize, and publish advanced visualizations using this popular and powerful framework.

With the third module, Learning Data Mining with R, you will learn how to manipulate data with R using code snippets and be introduced to mining frequent patterns, association, and correlations while working with R programs.

The Mastering R for Quantitative Finance module pragmatically introduces both the quantitative finance concepts and their modeling in R, enabling you to build a tailor-made trading system on your own. By the end of the module, you will be well-versed with various financial techniques using R and will be able to place good bets while making financial decisions.

Finally, we'll look at the Machine Learning with R module. With this module, 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. You'll also learn to apply machine learning methods to deal with common tasks, including classification, prediction, forecasting, and so on.

Style and approach

Learn data analysis, data visualization techniques, data mining, and machine learning all using R and also learn to build models in quantitative finance using this powerful language.

Hands-On Data Science for Marketing - Yoon Hyup Hwang 2019-03-29

Optimize your marketing strategies through analytics and machine learning

Key Features

Understand how data science drives successful marketing campaigns

Use machine learning for better customer engagement, retention, and product recommendations

Extract insights from your data to optimize marketing strategies and increase profitability

Book Description

Regardless of company size, the adoption of data science and machine learning for marketing has been rising in the industry. With this book, you will learn to implement data science techniques to understand the drivers behind the successes and failures of marketing campaigns. This book is a comprehensive guide to help you

understand and predict customer behaviors and create more effectively targeted and personalized marketing strategies. This is a practical guide to performing simple-to-advanced tasks, to extract hidden insights from the data and use them to make smart business decisions. You will understand what drives sales and increases customer engagements for your products. You will learn to implement machine learning to forecast which customers are more likely to engage with the products and have high lifetime value. This book will also show you how to use machine learning techniques to understand different customer segments and recommend the right products for each customer. Apart from learning to gain insights into consumer behavior using exploratory analysis, you will also learn the concept of A/B testing and implement it using Python and R. By the end of this book, you will be experienced enough with various data science and machine learning techniques to run and manage successful marketing campaigns for your business. What you will learn

Learn how to compute and visualize marketing KPIs in Python and R

Master what drives successful marketing campaigns with data science

Use machine learning to predict customer engagement and lifetime value

Make product recommendations that customers are most likely to buy

Learn how to use A/B testing for better marketing decision making

Implement machine learning to understand different customer segments

Who this book is for

If you are a marketing professional, data scientist, engineer, or a student keen to learn how to apply data science to marketing, this book is what you need! It will be beneficial to have some basic knowledge of either Python or R to work through the examples. This book will also be beneficial for beginners as it covers basic-to-advanced data science concepts and applications in marketing with real-life examples.

Hands-On Predictive Analytics with Python - Alvaro Fuentes 2018-12-28

Step-by-step guide to build high performing predictive applications

Key Features

Use the Python data analytics ecosystem to implement end-to-end predictive analytics projects

Explore advanced predictive modeling algorithms with an emphasis on theory with intuitive explanations

Learn to deploy a predictive model's results as an interactive application

Book Description

Predictive analytics is an applied field that employs a variety of quantitative methods using data to make predictions. It involves much more than just throwing data onto a computer to build a model. This book provides practical coverage to help you understand the most important concepts of predictive analytics. Using practical, step-by-step examples, we build predictive analytics solutions while using cutting-edge Python tools and packages. The book's step-by-step approach starts by defining the problem and moves on to identifying relevant data. We will also be performing data preparation, exploring and visualizing relationships, building models, tuning, evaluating, and deploying model. Each stage has relevant practical examples and efficient Python code. You will work with models such as KNN, Random Forests, and neural networks using the most important libraries in Python's data science stack: NumPy, Pandas, Matplotlib, Seaborn, Keras, Dash, and so on. In addition to hands-on code examples, you will find intuitive explanations of the inner workings of the main techniques and algorithms used in predictive analytics. By the end of this book, you will be all set to build high-performance predictive analytics solutions using Python programming. What you will learn

Get to grips with the main concepts and principles of predictive analytics

Learn about the stages involved in producing complete predictive analytics solutions

Understand how to define a problem, propose a solution, and prepare a dataset

Use visualizations to explore relationships and gain insights into the dataset

Learn to build regression and classification models using scikit-learn

Use Keras to build powerful neural network models that produce accurate predictions

Learn to serve a model's predictions as a web application

Who this book is for

This book is for data analysts, data scientists, data engineers, and Python developers who want to learn about predictive modeling and would like to implement predictive analytics solutions using Python's data stack. People from other backgrounds who would like to enter this exciting field will greatly benefit from reading this book. All you need is to be proficient in Python programming and have a basic understanding of statistics and college-level algebra.

Hands-On Deep Learning with R - Michael Pawlus 2020-04-24

Explore and implement deep learning to solve various real-world problems using modern R libraries such as TensorFlow, MXNet, H2O, and Deepnet

Key Features

Understand deep learning algorithms and architectures using R and determine which algorithm is best suited for a specific problem

Improve models using parameter tuning, feature engineering, and ensembling

Apply advanced neural network models such as deep autoencoders and generative adversarial networks (GANs) across different domains

Book Description

Deep learning enables efficient and accurate

learning from a massive amount of data. This book will help you overcome a number of challenges using various deep learning algorithms and architectures with R programming. This book starts with a brief overview of machine learning and deep learning and how to build your first neural network. You'll understand the architecture of various deep learning algorithms and their applicable fields, learn how to build deep learning models, optimize hyperparameters, and evaluate model performance. Various deep learning applications in image processing, natural language processing (NLP), recommendation systems, and predictive analytics will also be covered. Later chapters will show you how to tackle recognition problems such as image recognition and signal detection, programmatically summarize documents, conduct topic modeling, and forecast stock market prices. Toward the end of the book, you will learn the common applications of GANs and how to build a face generation model using them. Finally, you'll get to grips with using reinforcement learning and deep reinforcement learning to solve various real-world problems. By the end of this deep learning book, you will be able to build and deploy your own deep learning applications using appropriate frameworks and algorithms. What you will learn

Design a feedforward neural network to see how the activation function computes an output
Create an image recognition model using convolutional neural networks (CNNs)
Prepare data, decide hidden layers and neurons and train your model with the backpropagation algorithm
Apply text cleaning techniques to remove uninformative text using NLP
Build, train, and evaluate a GAN model for face generation
Understand the concept and implementation of reinforcement learning in R

Who this book is for
This book is for data scientists, machine learning engineers, and deep learning developers who are familiar with machine learning and are looking to enhance their knowledge of deep learning using practical examples. Anyone interested in increasing the efficiency of their machine learning applications and exploring various options in R will also find this book useful. Basic knowledge of machine learning techniques and working knowledge of the R programming language is expected.

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.

R: Recipes for Analysis, Visualization and Machine Learning - Viswa Viswanathan 2016-11-24

Get savvy with R language and actualize projects aimed at analysis, visualization and machine learning
About This Book
Proficiently analyze data and apply machine learning techniques
Generate visualizations, develop interactive visualizations and applications to understand various data exploratory functions in R
Construct a predictive model by using a variety of machine learning packages
Who This Book Is For
This Learning

Path is ideal for those who have been exposed to R, but have not used it extensively yet. It covers the basics of using R and is written for new and intermediate R users interested in learning. This Learning Path also provides in-depth insights into professional techniques for analysis, visualization, and machine learning with R – it will help you increase your R expertise, regardless of your level of experience. What You Will Learn
Get data into your R environment and prepare it for analysis
Perform exploratory data analyses and generate meaningful visualizations of the data
Generate various plots in R using the basic R plotting techniques
Create presentations and learn the basics of creating apps in R for your audience
Create and inspect the transaction dataset, performing association analysis with the Apriori algorithm
Visualize associations in various graph formats and find frequent itemset using the ECLAT algorithm
Build, tune, and evaluate predictive models with different machine learning packages
Incorporate R and Hadoop to solve machine learning problems on big data
In Detail
The R language is a powerful, open source, functional programming language. At its core, R is a statistical programming language that provides impressive tools to analyze data and create high-level graphics. This Learning Path is chock-full of recipes. Literally! It aims to excite you with awesome projects focused on analysis, visualization, and machine learning. We'll start off with data analysis – this will show you ways to use R to generate professional analysis reports. We'll then move on to visualizing our data – this provides you with all the guidance needed to get comfortable with data visualization with R. Finally, we'll move into the world of machine learning – this introduces you to data classification, regression, clustering, association rule mining, and dimension reduction. 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: R Data Analysis Cookbook by Viswa Viswanathan and Shanthi Viswanathan R Data Visualization Cookbook by Atmajitsinh Gohil Machine Learning with R Cookbook by Yu-Wei, Chiu (David Chiu) Style and approach
This course creates a smooth learning path that will teach you how to analyze data and create stunning visualizations. The step-by-step instructions provided for each recipe in this comprehensive Learning Path will show you how to create machine learning projects with R.

Machine Learning with R - Brett Lantz 2013-10-25

Written as a tutorial to explore and understand the power of R for machine learning. This practical guide that covers all of the need to know topics in a very systematic way. For each machine learning approach, each step in the process is detailed, from preparing the data for analysis to evaluating the results. These steps will build the knowledge you need to apply them to your own data science tasks. Intended for those who want to learn how to use R's machine learning capabilities and gain insight from your data. 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.

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
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.

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 In Detail 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.

Advanced Deep Learning with R - Bharatendra Rai 2019-12-17

Discover best practices for choosing, building, training, and improving deep learning models using Keras-R, and TensorFlow-R libraries Key Features Implement deep learning algorithms to build AI models with the help of tips and tricks Understand how deep learning models operate using expert techniques Apply reinforcement learning, computer vision, GANs, and NLP using a range of datasets Book Description Deep learning is a branch of machine learning based on a set of algorithms that attempt to model high-level abstractions in data. Advanced Deep Learning with R will help you understand popular deep learning architectures and their variants in R, along with providing real-life examples for them. This deep learning book starts by covering the essential deep learning techniques and concepts for prediction and classification. You will learn about neural networks, deep learning architectures, and the fundamentals for implementing deep learning with R. The book will also take you through using important deep learning libraries such as Keras-R and TensorFlow-R to implement deep learning algorithms within applications. You will get up to speed with artificial neural networks, recurrent neural networks, convolutional neural networks, long short-term memory networks, and more using advanced examples. Later, you'll discover how to apply generative adversarial networks (GANs) to generate new images; autoencoder neural networks for image dimension reduction, image de-

noising and image correction and transfer learning to prepare, define, train, and model a deep neural network. By the end of this book, you will be ready to implement your knowledge and newly acquired skills for applying deep learning algorithms in R through real-world examples. What you will learn Learn how to create binary and multi-class deep neural network models Implement GANs for generating new images Create autoencoder neural networks for image dimension reduction, image denoising and image correction Implement deep neural networks for performing efficient text classification Learn to define a recurrent convolutional network model for classification in Keras Explore best practices and tips for performance optimization of various deep learning models Who this book is for This book is for data scientists, machine learning practitioners, deep learning researchers and AI enthusiasts who want to develop their skills and knowledge to implement deep learning techniques and algorithms using the power of R. A solid understanding of machine learning and working knowledge of the R programming language are required.

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 Machine Learning with R - Brindha Priyadarshini Jeyaraman 2019-08-30

Understand how machine learning works and get hands-on experience of using R to build algorithms that can solve various real-world problems Key Features Gain a comprehensive overview of different machine learning

techniques Explore various methods for selecting a particular algorithm Implement a machine learning project from problem definition through to the final model Book Description With huge amounts of data being generated every moment, businesses need applications that apply complex mathematical calculations to data repeatedly and at speed. With machine learning techniques and R, you can easily develop these kinds of applications in an efficient way. Practical Machine Learning with R begins by helping you grasp the basics of machine learning methods, while also highlighting how and why they work. You will understand how to get these algorithms to work in practice, rather than focusing on mathematical derivations. As you progress from one chapter to another, you will gain hands-on experience of building a machine learning solution in R. Next, using R packages such as rpart, random forest, and multiple imputation by chained equations (MICE), you will learn to implement algorithms including neural net classifier, decision trees, and linear and non-linear regression. As you progress through the book, you'll delve into various machine learning techniques for both supervised and unsupervised learning approaches. In addition to this, you'll gain insights into partitioning the datasets and mechanisms to evaluate the results from each model and be able to compare them. By the end of this book, you will have gained expertise in solving your business problems, starting by forming a good problem statement, selecting the most appropriate model to solve your problem, and then ensuring that you do not overtrain it. What you will learn Define a problem that can be solved by training a machine learning model Obtain, verify and clean data before transforming it into the correct format for use Perform exploratory analysis and extract features from data Build models for neural net, linear and non-linear regression, classification, and clustering Evaluate the performance of a model with the right metrics Implement a classification problem using the neural net package Employ a decision tree using the random forest library Who this book is for If you are a data analyst, data scientist, or a business analyst who wants to understand the process of machine learning and apply it to a real dataset using R, this book is just what you need. Data scientists who use Python and want to implement their machine learning solutions using R will also find this book very useful. The book will also enable novice programmers to start their journey in data science. Basic knowledge of any programming language is all you need to get started.

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.

Applied Unsupervised Learning with R - Alok Malik 2019-03-27

Design clever algorithms that discover hidden patterns and draw responses from unstructured, unlabeled data. Key Features Build state-of-the-art algorithms that can solve your business' problems Learn how to find hidden patterns in your data Revise key concepts with hands-on exercises using real-world datasets Book Description Starting with the basics, Applied Unsupervised Learning with R explains clustering methods, distribution analysis, data encoders, and features of R that enable you to understand your data better and get answers to your most pressing business questions. This book begins with the most important and commonly used method for unsupervised learning - clustering - and explains the three main clustering algorithms - k-means, divisive, and agglomerative. Following this, you'll study market basket analysis, kernel density estimation, principal component analysis, and anomaly detection. You'll be introduced to these methods using code written in R, with further instructions on how to work with, edit, and improve R code. To help you gain a practical understanding, the book also features useful tips on applying these methods to real business problems, including market segmentation and fraud detection. By working through interesting activities, you'll explore data encoders and latent variable models. By the end of this book, you will have a better understanding of different anomaly detection methods, such as outlier detection, Mahalanobis distances, and contextual and collective anomaly detection. What you will learn Implement clustering methods such as k-means, agglomerative, and divisive Write code in R to analyze market segmentation and consumer behavior Estimate distribution and probabilities of different outcomes Implement dimension reduction using principal component analysis Apply anomaly detection methods to identify fraud Design algorithms with R and learn how to edit or improve code Who this book is for Applied

Unsupervised Learning with R is designed for business professionals who want to learn about methods to understand their data better, and developers who have an interest in unsupervised learning. Although the book is for beginners, it will be beneficial to have some basic, beginner-level familiarity with R. This includes an understanding of how to open the R console, how to read data, and how to create a loop. To easily understand the concepts of this book, you should also know basic mathematical concepts, including exponents, square roots, means, and medians.

Practical Big Data Analytics - Nataraj Dasgupta 2018-01-15

Get command of your organizational Big Data using the power of data science and analytics Key Features A perfect companion to boost your Big Data storing, processing, analyzing skills to help you take informed business decisions Work with the best tools such as Apache Hadoop, R, Python, and Spark for NoSQL platforms to perform massive online analyses Get expert tips on statistical inference, machine learning, mathematical modeling, and data visualization for Big Data Book Description Big Data analytics relates to the strategies used by organizations to collect, organize and analyze large amounts of data to uncover valuable business insights that otherwise cannot be analyzed through traditional systems. Crafting an enterprise-scale cost-efficient Big Data and machine learning solution to uncover insights and value from your organization's data is a challenge. Today, with hundreds of new Big Data systems, machine learning packages and BI Tools, selecting the right combination of technologies is an even greater challenge. This book will help you do that. With the help of this guide, you will be able to bridge the gap between the theoretical world of technology with the practical ground reality of building corporate Big Data and data science platforms. You will get hands-on exposure to Hadoop and Spark, build machine learning dashboards using R and R Shiny, create web-based apps using NoSQL databases such as MongoDB and even learn how to write R code for neural networks. By the end of the book, you will have a very clear and concrete understanding of what Big Data analytics means, how it drives revenues for organizations, and how you can develop your own Big Data analytics solution using different tools and methods articulated in this book. What you will learn - Get a 360-degree view into the world of Big Data, data science and machine learning - Broad range of technical and business Big Data analytics topics that caters to the interests of the technical experts as well as corporate IT executives - Get hands-on experience with industry-standard Big Data and machine learning tools such as Hadoop, Spark, MongoDB, KDB+ and R - Create production-grade machine learning BI Dashboards using R and R Shiny with step-by-step instructions - Learn how to combine open-source Big Data, machine learning and BI Tools to create low-cost business analytics applications - Understand corporate strategies for successful Big Data and data science projects - Go beyond general-purpose analytics to develop cutting-edge Big Data applications using emerging technologies Who this book is for The book is intended for existing and aspiring Big Data professionals who wish to become the go-to person in their organization when it comes to Big Data architecture, analytics, and governance. While no prior knowledge of Big Data or related technologies is assumed, it will be helpful to have some programming experience.

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.

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.

Advanced Analytics with R and Tableau - Jen Stirrup 2017-08-22

Leverage the power of advanced analytics and predictive modeling in Tableau using the statistical powers of R About This Book A

comprehensive guide that will bring out the creativity in you to visualize the results of complex calculations using Tableau and R Combine Tableau analytics and visualization with the power of R using this step-by-step guide Wondering how R can be used with Tableau? This book is your one-stop solution. Who This Book Is For This book will appeal to Tableau users who want to go beyond the Tableau interface and deploy the full potential of Tableau, by using R to perform advanced analytics with Tableau. A basic familiarity with R is useful but not compulsory, as the book will start off with concrete examples of R and will move quickly into more advanced spheres of analytics using online data sources to support hands-on learning. Those R developers who want to integrate R in Tableau will also benefit from this book. What You Will Learn Integrate Tableau's analytics with the industry-standard, statistical prowess of R. Make R function calls in Tableau, and visualize R functions with Tableau using RServe. Use the CRISP-DM methodology to create a roadmap for analytics investigations. Implement various supervised and unsupervised learning algorithms in R to return values to Tableau. Make quick, cogent, and data-driven decisions for your business using advanced analytical techniques such as forecasting, predictions, association rules, clustering, classification, and other advanced Tableau/R calculated field functions. In Detail Tableau and R offer accessible analytics by allowing a combination of easy-to-use data visualization along with industry-standard, robust statistical computation. Moving from data visualization into deeper, more advanced analytics? This book will intensify data skills for data viz-savvy users who want to move into analytics and data science in order to enhance their businesses by harnessing the analytical power of R and the stunning visualization capabilities of Tableau. Readers will come across a wide range of machine learning algorithms and learn how descriptive, prescriptive, predictive, and visually appealing analytical solutions can be designed with R and Tableau. In order to maximize learning, hands-on examples will ease the transition from being a data-savvy user to a data analyst using sound statistical tools to perform advanced analytics. By the end of this book, you will get to grips with advanced calculations in R and Tableau for analytics and prediction with the help of use cases and hands-on examples. Style and approach Tableau (uniquely) offers excellent visualization combined with advanced analytics; R is at the pinnacle of statistical computational languages. When you want to move from one view of data to another, backed up by complex computations, the combination of R and Tableau makes the perfect solution. This example-rich guide will teach you how to combine these two to perform advanced analytics by integrating Tableau with R and create beautiful data visualizations.

SQL Server 2017 Machine Learning Services with R - Tomaz Kastrun 2018-02-27

Develop and run efficient R scripts and predictive models for SQL Server 2017 Key Features Learn how you can combine the power of R and SQL Server 2017 to build efficient, cost-effective data science solutions Leverage the capabilities of R Services to perform advanced analytics—from data exploration to predictive modeling A quick primer with practical examples to help you get up- and- running with SQL Server 2017 Machine Learning Services with R, as part of database solutions with continuous integration / continuous delivery. Book Description R Services was one of the most anticipated features in SQL Server 2016, improved significantly and rebranded as SQL Server 2017 Machine Learning Services. Prior to SQL Server 2016, many developers and data scientists were already using R to connect to SQL Server in siloed environments that left a lot to be desired, in order to do additional data analysis, superseding SSAS Data Mining or additional CLR programming functions. With R integrated within SQL Server 2017, these developers and data scientists can now benefit from its integrated, effective, efficient, and more streamlined analytics environment. This book gives you foundational knowledge and insights to help you understand SQL Server 2017 Machine Learning Services with R. First and foremost, the book provides practical

examples on how to implement, use, and understand SQL Server and R integration in corporate environments, and also provides explanations and underlying motivations. It covers installing Machine Learning Services; maintaining, deploying, and managing code; and monitoring your services. Delving more deeply into predictive modeling and the RevoScaleR package, this book also provides insights into operationalizing code and exploring and visualizing data. To complete the journey, this book covers the new features in SQL Server 2017 and how they are compatible with R, amplifying their combined power. What you will learn Get an overview of SQL Server 2017 Machine Learning Services with R Manage SQL Server Machine Learning Services from installation to configuration and maintenance Handle and operationalize R code Explore RevoScaleR R algorithms and create predictive models Deploy, manage, and monitor database solutions with R Extend R with SQL Server 2017 features Explore the power of R for database administrators Who this book is for This book is for data analysts, data scientists, and database administrators with some or no experience in R but who are eager to easily deliver practical data science solutions in their day-to-day work (or future projects) using SQL Server.

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-wranglers face, you'll learn to apply machine learning methods to deal with common tasks, including classification, prediction, forecasting, market analysis, and clustering.

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 In Detail 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.

Mastering Data Analysis with R - Gergely Daroczi 2015-09-30

Gain sharp insights into your data and solve real-world data science problems with R—from data munging to modeling and visualization About This Book Handle your data with precision and care for optimal business intelligence Restructure and transform your data to inform decision-making Packed with practical advice and tips to help you get to grips with data mining Who This Book Is For If you are a data scientist or R developer who wants to explore and optimize your use of R's advanced features and tools, this is the book for you. A basic knowledge of R is required, along with an understanding of database logic. What You Will Learn Connect to and load data from R's range of powerful databases Successfully fetch and parse structured and unstructured data Transform and restructure your data with efficient R packages Define and build complex statistical models with glm Develop and train machine learning algorithms Visualize social networks and graph data Deploy supervised and unsupervised classification algorithms Discover how to visualize spatial data with R In Detail R is an essential language for sharp and successful data analysis. Its numerous features and ease of use make it a powerful way of mining, managing, and interpreting large sets of data. In a world where understanding big data has become key, by mastering R you will be able to deal with your data effectively and efficiently. This book will give you the guidance you need to build and develop your knowledge and expertise. Bridging the gap between theory and practice, this book will help you to understand and use data for a competitive advantage. Beginning with taking you through essential data mining and management tasks such as munging, fetching, cleaning, and restructuring, the book then explores different model designs and the core components of effective analysis. You will then discover how to optimize your use of machine learning algorithms for classification and recommendation systems beside the traditional and more recent statistical methods. Style and approach Covering the essential tasks and skills within data science, Mastering Data Analysis provides you with solutions to the challenges of data science. Each section gives you a theoretical overview before demonstrating how to put the theory to work with real-world use cases and hands-on examples.

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.

Machine Learning with R Cookbook - Yu-Wei, Chiu (David Chiu) 2015-03-26

The R language is a powerful open source functional programming language. At its core, R is a statistical programming language that provides impressive tools to analyze data and create high-level graphics. This book covers the basics of R by setting up a user-friendly programming environment and performing data ETL in R. Data exploration examples are provided that demonstrate how powerful data visualization and machine learning is in discovering hidden relationships. You will then dive into important machine learning topics, including data classification, regression, clustering, association rule mining, and dimension reduction.

R: Predictive Analysis - 2017

R: Unleash Machine Learning Techniques - Raghav Bali 2016-10-24

Find out how to build smarter machine learning systems with R. Follow this three module course to become a more fluent machine learning practitioner. About This Book Build your confidence with R and find out how to solve a huge range of data-related problems Get to grips with some of the most important machine learning techniques being used by data scientists and analysts across industries today Don't just learn - apply your knowledge by following featured practical projects covering everything from financial modeling to social media analysis Who This Book Is For Aimed for intermediate-to-advanced people (especially data scientist) who are already into the field of data science What You Will Learn Get to grips with R techniques to clean and prepare your data for analysis, and visualize your results Implement R machine learning algorithms from scratch and be amazed to see the algorithms in action Solve interesting real-world problems using machine learning and R as the journey unfolds Write reusable code and build complete machine learning systems from the ground up Learn specialized machine learning techniques for text mining, social network data, big data, and more Discover the different types of machine learning models and learn which is best to meet your data needs and solve your analysis problems Evaluate and improve the performance of machine learning models Learn specialized machine learning techniques for text mining, social network data, big data, and more In Detail R is the established language of data analysts and statisticians around the world. And you shouldn't be afraid to use it... This Learning Path will take you through the fundamentals of R and demonstrate how to use the language to solve a diverse range of challenges through machine learning. Accessible yet comprehensive, it provides you with everything you need to become more a more fluent data professional, and more confident with R. In the first module you'll get to grips with the fundamentals of R. This means you'll be taking a look at some of the details of how the language works, before seeing how to put your knowledge into practice to build some simple machine learning projects that could prove useful for a range of real world problems. For the following two modules we'll begin to investigate machine learning algorithms in more detail. To build upon the basics, you'll get to work on three different projects that will test your skills. Covering some of the most important algorithms and featuring some of the most popular R packages, they're all focused on solving real problems in different areas, ranging from finance to social media. This Learning Path has been curated from three Packt products: R Machine Learning By Example By Raghav Bali, Dipanjan Sarkar Machine Learning with R Learning - Second Edition By Brett Lantz Mastering Machine Learning with R By Cory Lesmeister Style and approach This is an enticing learning path 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-world problem involving hands-on work

thus giving you a deep insight into the world of machine learning.

Deep Learning with R for Beginners - Mark Hodnett 2019-05-17

Explore the world of neural networks by building powerful deep learning models using the R ecosystem Key Features Get to grips with the fundamentals of deep learning and neural networks Use R 3.5 and its libraries and APIs to build deep learning models for computer vision and text processing Implement effective deep learning systems in R with the help of end-to-end projects Book Description Deep learning finds practical applications in several domains, while R is the preferred language for designing and deploying deep learning models. This Learning Path introduces you to the basics of deep learning and even teaches you to build a neural network model from scratch. As you make your way through the chapters, you'll explore deep learning libraries and understand how to create deep learning models for a variety of challenges, right from anomaly detection to recommendation systems. The book will then help you cover advanced topics, such as generative adversarial networks (GANs), transfer learning, and large-scale deep learning in the cloud, in addition to model optimization, overfitting, and data augmentation. Through real-world projects, you'll also get up to speed with training convolutional neural networks (CNNs), recurrent neural networks (RNNs), and long short-term memory networks (LSTMs) in R. By the end of this Learning Path, you'll be well versed with deep learning and have the skills you need to implement a number of deep learning concepts in your research work or projects. This Learning Path includes content from the following Packt products: R Deep Learning Essentials - Second Edition by Joshua F. Wiley and Mark Hodnett R Deep Learning Projects by Yuxi (Hayden) Liu and Pablo Maldonado What you will learn Implement credit card fraud detection with autoencoders Train neural networks to perform handwritten digit recognition using MXNet Reconstruct images using variational autoencoders Explore the applications of autoencoder neural networks in clustering and dimensionality reduction Create natural language processing (NLP) models using Keras and TensorFlow in R Prevent models from overfitting the data to improve generalizability Build shallow neural network prediction models Who this book is for This Learning Path is for aspiring data scientists, data analysts, machine learning developers, and deep learning enthusiasts who are well versed in machine learning concepts and are looking to explore the deep learning paradigm using R. A fundamental understanding of R programming and familiarity with the basic concepts of deep learning are necessary to get the most out of this Learning Path.

R for Data Science - Dan Toomey 2014-12-24

If you are a data analyst who has a firm grip on some advanced data analysis techniques and wants to learn how to leverage the features of R, this is the book for you. You should have some basic knowledge of the R language and should know about some data science topics.

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 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.

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 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.

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.

Big Data Analytics with Java - Rajat Mehta 2017-07-31

Learn the basics of analytics on big data using Java, machine learning and other big data tools About This Book Acquire real-world set of tools for building enterprise level data science applications Surpasses the barrier of other languages in data science and learn create useful object-oriented codes Extensive use of Java compliant big data tools like apache spark, Hadoop, etc. Who This Book Is For This book is for Java developers who are looking to perform data analysis in production environment. Those who wish to implement data analysis in their Big data applications will find this book helpful. What You Will Learn Start from simple analytic tasks on big data Get into more complex tasks with predictive analytics on big data using machine learning Learn real time analytic tasks Understand the concepts with examples and case studies Prepare and refine data for

analysis Create charts in order to understand the data See various real-world datasets In Detail This book covers case studies such as sentiment analysis on a tweet dataset, recommendations on a movielens dataset, customer segmentation on an ecommerce dataset, and graph analysis on actual flights dataset. This book is an end-to-end guide to implement analytics on big data with Java. Java is the de facto language for major big data environments, including Hadoop. This book will teach you how to perform analytics on big data with production-friendly Java. This book basically divided into two sections. The first part is an introduction that will help the readers get acquainted with big data environments, whereas the second part will contain a hardcore discussion on all the concepts in analytics on big data. It will take you from data analysis and data visualization to the core concepts and advantages of machine learning, real-life usage of regression and classification using Naive Bayes, a deep discussion on the concepts of clustering, and a review of simple neural networks on big data using deepLearning4j or plain Java Spark code. This book is a must-have book for Java developers who want to start learning big data analytics and want to use it in the real world. Style and approach The approach of book is to deliver practical learning modules in manageable content. Each chapter is a self-contained unit of a concept in big data analytics. Book will step by step builds the competency in the area of big data analytics. Examples using real world case studies to give ideas of real applications and how to use the techniques mentioned. The examples and case studies will be shown using both theory and code.

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.

STATISTICS FOR MACHINE LEARNING - - PRATAP. DANGETI 2019