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Analyzing Sensory Data with R - Sebastien Le 2014-10-09

Choose the Proper Statistical Method for Your Sensory Data Issue
Analyzing Sensory Data with R gives you the foundation to analyze and interpret sensory data. The book helps you find the most appropriate statistical method to tackle your sensory data issue. Covering quantitative, qualitative, and affective approaches, the book presents the big picture of sensory evaluation. Through an integrated approach that connects the different dimensions of sensory evaluation, you'll understand: The reasons why sensory data are collected The ways in which the data are collected and analyzed The intrinsic meaning of the data The interpretation of the data analysis results Each chapter corresponds to one main sensory topic. The chapters start with presenting the nature of the sensory evaluation and its objectives, the sensory particularities related to the sensory evaluation, details about the data set obtained, and the statistical analyses required. Using real examples, the authors then illustrate step by step how the analyses are performed in R. The chapters conclude with variants and extensions of the methods that are related to the sensory task itself, the statistical methodology, or both.

1978 FAA R. & D. Authorization - United States. Congress. House. Committee on Science and Technology. Subcommittee on Aviation and Transportation R. & D. 1976

Kernel Methods for Machine Learning with Math and Code - Joe Suzuki 2022

The most crucial ability for machine learning and data science is mathematical logic for grasping their essence rather than relying on knowledge or experience. This textbook addresses the fundamentals of kernel methods for machine learning by considering relevant math problems and building R programs. The book's main features are as follows: The content is written in an easy-to-follow and self-contained style. The book includes 100 exercises, which have been carefully selected and refined. As their solutions are provided in the main text, readers can solve all of the exercises by reading the book. The mathematical premises of kernels are proven and the correct conclusions are provided, helping readers to understand the nature of kernels. Source programs and running examples are presented to help readers acquire a deeper understanding of the mathematics used. Once readers have a basic understanding of the functional analysis topics covered in Chapter 2, the applications are discussed in the subsequent chapters. Here, no prior knowledge of mathematics is assumed. This book considers both the kernel for reproducing kernel Hilbert space (RKHS) and the kernel for the Gaussian process; a clear distinction is made between the two.

Army R, D & A. - 1972

Mastering Spark with R - Javier Luraschi 2019-10-07

If you're like most R users, you have deep knowledge and love for statistics. But as your organization continues to collect huge amounts of data, adding tools such as Apache Spark makes a lot of sense. With this practical book, data scientists and professionals working with large-scale data applications will learn how to use Spark from R to tackle big data and big compute problems. Authors Javier Luraschi, Kevin Kuo, and Edgar Ruiz show you how to use R with Spark to solve different data analysis problems. This book covers relevant data science topics, cluster computing, and issues that should interest even the most advanced users. Analyze, explore, transform, and visualize data in Apache Spark with R Create statistical models to extract information and predict outcomes; automate the process in production-ready workflows Perform analysis and modeling across many machines using distributed computing techniques Use large-scale data from multiple sources and different formats with ease from within Spark Learn about alternative modeling frameworks for graph processing, geospatial analysis, and genomics at scale Dive into advanced topics including custom transformations, real-time data processing, and creating custom Spark

extensions

Practical R 4 - Jon Westfall 2020-06-30

Get started with an accelerated introduction to the R ecosystem, programming language, and tools including R script and RStudio. Utilizing many examples and projects, this book teaches you how to get data into R and how to work with that data using R. Once grounded in the fundamentals, the rest of Practical R 4 dives into specific projects and examples starting with running and analyzing a survey using R and LimeSurvey. Next, you'll carry out advanced statistical analysis using R and MouseLabWeb. Then, you'll see how R can work for you without statistics, including how R can be used to automate data formatting, manipulation, reporting, and custom functions. The final part of this book discusses using R on a server; you'll build a script with R that can run an RStudio Server and monitor a report source for changes to alert the user when something has changed. This project includes both regular email alerting and push notification. And, finally, you'll use R to create a customized daily rundown report of a person's most important information such as a weather report, daily calendar, to-do's and more. This demonstrates how to automate such a process so that every morning, the user navigates to the same web page and gets the updated report. What You Will Learn Set up and run an R script, including installation on a new machine and downloading and configuring R Turn any machine into a powerful data analytics platform accessible from anywhere with RStudio Server Write basic R scripts and modify existing scripts to suit your own needs Create basic HTML reports in R, inserting information as needed Build a basic R package and distribute it Who This Book Is For Some prior exposure to statistics, programming, and maybe SAS is recommended but not required.

Reproducible Econometrics Using R - Jeffrey S. Racine 2018-12-24

Across the social sciences there has been increasing focus on reproducibility, i.e., the ability to examine a study's data and methods to ensure accuracy by reproducing the study. Reproducible Econometrics Using R combines an overview of key issues and methods with an introduction to how to use them using open source software (R) and recently developed tools (R Markdown and bookdown) that allow the reader to engage in reproducible econometric research. Jeffrey S. Racine provides a step-by-step approach, and covers five sets of topics, i) linear time series models, ii) robust inference, iii) robust estimation, iv) model uncertainty, and v) advanced topics. The time series material highlights the difference between time-series analysis, which focuses on forecasting, versus cross-sectional analysis, where the focus is typically on model parameters that have economic interpretations. For the time series material, the reader begins with a discussion of random walks, white noise, and non-stationarity. The reader is next exposed to the pitfalls of using standard inferential procedures that are popular in cross sectional settings when modelling time series data, and is introduced to alternative procedures that form the basis for linear time series analysis. For the robust inference material, the reader is introduced to the potential advantages of bootstrapping and the Jackknifing versus the use of asymptotic theory, and a range of numerical approaches are presented. For the robust estimation material, the reader is presented with a discussion of issues surrounding outliers in data and methods for addressing their presence. Finally, the model uncertainty material outlines two dominant approaches for dealing with model uncertainty, namely model selection and model averaging. Throughout the book there is an emphasis on the benefits of using R and other open source tools for ensuring reproducibility. The advanced material covers machine learning methods (support vector machines that are useful for classification) and nonparametric kernel regression which provides the reader with more advanced methods for confronting model uncertainty. The book is well suited for advanced undergraduate and graduate students alike. Assignments, exams, slides, and a solution manual are available for instructors.

Regression Analysis in R - Jocelyn E. Bolin 2022-07-27

Regression Analysis in R: A Comprehensive View for the Social Sciences covers the basic applications of multiple linear regression all the way through to more complex regression applications and extensions. Written for graduate level students of social science disciplines this book walks readers through bivariate correlation giving them a solid framework from which to expand into more complicated regression models.

Concepts are demonstrated using R software and real data examples. Key Features: Full output examples complete with interpretation Full syntax examples to help teach R code Appendix explaining basic R functions Methods for multilevel data that are often included in basic regression texts End of Chapter Comprehension Exercises

R Visualizations David Gerbing 2020-04-28

R Visualizations: Derive Meaning from Data focuses on one of the two major topics of data analytics: data visualization, a.k.a., computer graphics. In the book, major R systems for visualization are discussed, organized by topic and not by system. Anyone doing data analysis will be shown how to use R to generate any of the basic visualizations with the R visualization systems. Further, this book introduces the author's lessR system, which always can accomplish a visualization with less coding than the use of other systems, sometimes dramatically so, and also provides accompanying statistical analyses. Key Features Presents thorough coverage of the leading R visualization system, ggplot2. Gives specific guidance on using base R graphics to attain visualizations of the same quality as those provided by ggplot2. Shows how to create a wide range of data visualizations: distributions of categorical and continuous variables, many types of scatterplots including with a third variable, time series, and maps. Inclusion of the various approaches to R graphics organized by topic instead of by system. Presents the recent work on interactive visualization in R. David W. Gerbing received his PhD from Michigan State University in 1979 in quantitative analysis, and currently is a professor of quantitative analysis in the School of Business at Portland State University. He has published extensively in the social and behavioral sciences with a focus on quantitative methods. His lessR package has been in development since 2009.

The Big R-Book Philippe J. S. De Brouwer 2020-09-29

Introduces professionals and scientists to statistics and machine learning using the programming language R Written by and for practitioners, this book provides an overall introduction to R, focusing on tools and methods commonly used in data science, and placing emphasis on practice and business use. It covers a wide range of topics in a single volume, including big data, databases, statistical machine learning, data wrangling, data visualization, and the reporting of results. The topics covered are all important for someone with a science/math background that is looking to quickly learn several practical technologies to enter or transition to the growing field of data science. The Big R-Book for Professionals: From Data Science to Learning Machines and Reporting with R includes nine parts, starting with an introduction to the subject and followed by an overview of R and elements of statistics. The third part revolves around data, while the fourth focuses on data wrangling. Part 5 teaches readers about exploring data. In Part 6 we learn to build models, Part 7 introduces the reader to the reality in companies, Part 8 covers reports and interactive applications and finally Part 9 introduces the reader to big data and performance computing. It also includes some helpful appendices. Provides a practical guide for non-experts with a focus on business users Contains a unique combination of topics including an introduction to R, machine learning, mathematical models, data wrangling, and reporting Uses a practical tone and integrates multiple topics in a coherent framework Demystifies the hype around machine learning and AI by enabling readers to understand the provided models and program them in R Shows readers how to visualize results in static and interactive reports Supplementary materials includes PDF slides based on the book's content, as well as all the extracted R-code and is available to everyone on a Wiley Book Companion Site The Big R-Book is an excellent guide for science technology, engineering, or mathematics students who wish to make a successful transition from the academic world to the professional. It will also appeal to all young data scientists, quantitative analysts, and analytics professionals, as well as those who make mathematical models.

A First Course in Statistical Programming with R - W. John Braun 2016-07-18

This new color edition of Braun and Murdoch's bestselling textbook integrates use of the RStudio platform and adds discussion of newer graphics systems, extensive exploration of Markov chain Monte Carlo, expert advice on common error messages, motivating applications of matrix decompositions, and numerous new examples and exercises. This

is the only introduction needed to start programming in R, the computing standard for analyzing data. Co-written by an R core team member and an established R author, this book comes with real R code that complies with the standards of the language. Unlike other introductory books on the R system, this book emphasizes programming, including the principles that apply to most computing languages, and techniques used to develop more complex projects. Solutions, datasets, and any errata are available from the book's website. The many examples, all from real applications, make it particularly useful for anyone working in practical data analysis.

Text Mining with R - Julia Silge 2017-06-12

Chapter 7. Case Study : Comparing Twitter Archives; Getting the Data and Distribution of Tweets; Word Frequencies; Comparing Word Usage; Changes in Word Use; Favorites and Retweets; Summary; Chapter 8. Case Study : Mining NASA Metadata; How Data Is Organized at NASA; Wrangling and Tidying the Data; Some Initial Simple Exploration; Word Co-occurrences and Correlations; Networks of Description and Title Words; Networks of Keywords; Calculating tf-idf for the Description Fields; What Is tf-idf for the Description Field Words?; Connecting Description Fields to Keywords; Topic Modeling.

Latent Variable Modeling with R - W. Holmes Finch 2015-06-26

This book demonstrates how to conduct latent variable modeling (LVM) in R by highlighting the features of each model, their specialized uses, examples, sample code and output, and an interpretation of the results. Each chapter features a detailed example including the analysis of the data using R, the relevant theory, the assumptions underlying the model, and other statistical details to help readers better understand the models and interpret the results. Every R command necessary for conducting the analyses is described along with the resulting output which provides readers with a template to follow when they apply the methods to their own data. The basic information pertinent to each model, the newest developments in these areas, and the relevant R code to use them are reviewed. Each chapter also features an introduction, summary, and suggested readings. A glossary of the text's boldfaced key terms and key R commands serve as helpful resources. The book is accompanied by a website with exercises, an answer key, and the in-text example data sets. Latent Variable Modeling with R: -Provides some examples that use messy data providing a more realistic situation readers will encounter with their own data. -Reviews a wide range of LVMs including factor analysis, structural equation modeling, item response theory, and mixture models and advanced topics such as fitting nonlinear structural equation models, nonparametric item response theory models, and mixture regression models. -Demonstrates how data simulation can help researchers better understand statistical methods and assist in selecting the necessary sample size prior to collecting data. -

www.routledge.com/9780415832458 provides exercises that apply the models along with annotated R output answer keys and the data that corresponds to the in-text examples so readers can replicate the results and check their work. The book opens with basic instructions in how to use R to read data, download functions, and conduct basic analyses. From there, each chapter is dedicated to a different latent variable model including exploratory and confirmatory factor analysis (CFA), structural equation modeling (SEM), multiple groups CFA/SEM, least squares estimation, growth curve models, mixture models, item response theory (both dichotomous and polytomous items), differential item functioning (DIF), and correspondance analysis. The book concludes with a discussion of how data simulation can be used to better understand the workings of a statistical method and assist researchers in deciding on the necessary sample size prior to collecting data. A mixture of independently developed R code along with available libraries for simulating latent models in R are provided so readers can use these simulations to analyze data using the methods introduced in the previous chapters. Intended for use in graduate or advanced undergraduate courses in latent variable modeling, factor analysis, structural equation modeling, item response theory, measurement, or multivariate statistics taught in psychology, education, human development, and social and health sciences, researchers in these fields also appreciate this book's practical approach. The book provides sufficient conceptual background information to serve as a standalone text. Familiarity with basic statistical concepts is assumed but basic knowledge of R is not.

National Patterns of R & D Resources; Funds and Personnel in the United States National Science Foundation (U.S.) 1972

A Data Scientist's Guide to Acquiring, Cleaning, and Managing Data in R - Samuel E. Buttrey 2017-12-18

The only how-to guide offering a unified, systemic approach to acquiring, cleaning, and managing data in R. Every experienced practitioner knows that preparing data for modeling is a painstaking, time-consuming process. Adding to the difficulty is that most modelers learn the steps involved in cleaning and managing data piecemeal, often on the fly, or they develop their own ad hoc methods. This book helps simplify their task by providing a unified, systematic approach to acquiring, modeling, manipulating, cleaning, and maintaining data in R. Starting with the very basics, data scientists Samuel E. Buttrey and Lyn R. Whitaker walk readers through the entire process. From what data looks like and what it should look like, they progress through all the steps involved in getting data ready for modeling. They describe best practices for acquiring data from numerous sources; explore key issues in data handling, including text/regular expressions, big data, parallel processing, merging, matching, and checking for duplicates; and outline highly efficient and reliable techniques for documenting data and recordkeeping, including audit trails, getting data back out of R, and more. The only single-source guide to R data and its preparation, it describes best practices for acquiring, manipulating, cleaning, and maintaining data. Begins with the basics and walks readers through all the steps necessary to get data ready for the modeling process. Provides expert guidance on how to document the processes described so that they are reproducible. Written by seasoned professionals, it provides both introductory and advanced techniques. Features case studies with supporting data and R code, hosted on a companion website. *A Data Scientist's Guide to Acquiring, Cleaning and Managing Data in R* is a valuable working resource/bench manual for practitioners who collect and analyze data, lab scientists and research associates of all levels of experience, and graduate-level data mining students.

Geochemical Modelling of Igneous Processes - Principles And Recipes In R Language - Vojtěch Janoušek 2015-09-10

The aim of this book is to unlock the power of the freeware R language to advanced university students and researchers dealing with whole-rock geochemistry of (meta-) igneous rocks. The first part covers data input/output, calculation of commonly used indexes and plotting in R. The core of the book then focusses on the presentation and practical implementations of modelling techniques used for fingerprinting processes such as partial melting, fractional crystallization, binary mixing or AFC using major-, trace-element and radiogenic isotope data. The reader will be given a firm theoretical basis for forward/reverse modelling, followed by exercises dealing with typical problems likely to be encountered in real life, and their solutions using R. The concluding sections demonstrate, using practical examples, how a researcher can proceed in developing a realistic model simulating natural systems. The appendices outline the fundamentals of the R language and provide a quick introduction to the open-source R-package GCDkit for interpretation of whole-rock geochemical data from igneous and metamorphic rocks.

National Patterns of R & D Resources - 1996

SSD for R - Charles Auerbach 2021-11-12

"In this chapter you will learn how to measure target behaviors and use Excel or other software to record and edit client data. You will then be able to import these data into R and use the SSD for R functions to analyze them. The first part of this chapter will focus on the types of data you will want to record and some common issues related to collecting these. While an overview of this material is covered in this chapter, additional resources that include these topics in-depth are listed in Appendix D. The second part of this chapter will show you how to use Excel or another spreadsheet program to quickly and effectively record these data"--

The Book of R - Tilman M. Davies 2016-07-16

The Book of R is a comprehensive, beginner-friendly guide to R, the world's most popular programming language for statistical analysis. Even if you have no programming experience and little more than a grounding in the basics of mathematics, you'll find everything you need to begin using R effectively for statistical analysis. You'll start with the basics, like how to handle data and write simple programs, before moving on to more advanced topics, like producing statistical summaries of your data and performing statistical tests and modeling. You'll even learn how to create impressive data visualizations with R's basic graphics tools and contributed packages, like ggplot2 and ggvis, as well as interactive 3D visualizations using the rgl package. Dozens of hands-on exercises (with downloadable solutions) take you from theory to practice, as you learn: -The fundamentals of programming in R, including

how to write data frames, create functions, and use variables, statements, and loops -Statistical concepts like exploratory data analysis, probabilities, hypothesis tests, and regression modeling, and how to execute them in R -How to access R's thousands of functions, libraries, and data sets -How to draw valid and useful conclusions from your data -How to create publication-quality graphics of your results Combining detailed explanations with real-world examples and exercises, this book will provide you with a solid understanding of both statistics and the depth of R's functionality. Make The Book of R your doorway into the growing world of data analysis.

Survival and Growth (II): the Small R & D Firm - Samuel Z. Cardon 1973

Meta-Analysis with R - Guido Schwarzer 2015-10-08

This book provides a comprehensive introduction to performing meta-analysis using the statistical software R. It is intended for quantitative researchers and students in the medical and social sciences who wish to learn how to perform meta-analysis with R. As such, the book introduces the key concepts and models used in meta-analysis. It also includes chapters on the following advanced topics: publication bias and small study effects; missing data; multivariate meta-analysis, network meta-analysis; and meta-analysis of diagnostic studies.

R for Data Science - Hadley Wickham 2016-12-12

Learn how to use R to turn raw data into insight, knowledge, and understanding. This book introduces you to R, RStudio, and the tidyverse, a collection of R packages designed to work together to make data science fast, fluent, and fun. Suitable for readers with no previous programming experience, R for Data Science is designed to get you doing data science as quickly as possible. Authors Hadley Wickham and Garrett Grolemund guide you through the steps of importing, wrangling, exploring, and modeling your data and communicating the results. You'll get a complete, big-picture understanding of the data science cycle, along with basic tools you need to manage the details. Each section of the book is paired with exercises to help you practice what you've learned along the way. You'll learn how to: Wrangle—transform your datasets into a form convenient for analysis Program—learn powerful R tools for solving data problems with greater clarity and ease Explore—examine your data, generate hypotheses, and quickly test them Model—provide a low-dimensional summary that captures true "signals" in your dataset Communicate—learn R Markdown for integrating prose, code, and results

2004 Rumelhart Prize Special Issue Honoring John R. Anderson - Robert Goldstone 2013-11-19

This special issue of Cognitive Science honors the research and mentorship contributions of Dr. John R. Anderson, the 2004 David E. Rumelhart Prize recipient whose research has provided the field of cognitive psychology with comprehensive and integrative theories, and has had a practical impact on educational practice in the classroom and on student achievement in learning mathematics. The David E. Rumelhart Prize is awarded annually to an individual or collaborative team making a significant contemporary contribution to the formal analysis of human cognition. For three decades, Dr. Anderson has been engaged in a vigorous research program with the goal of developing a computational theory of mind. The diverse articles in this issue feature work by Dr. Anderson's students, colleagues, and collaborators, illustrating that it is possible to impact education with rigorous stimulation of human cognition.

Introductory Statistics with R - Peter Dalgaard 2008-06-27

This book provides an elementary-level introduction to R, targeting both non-statistician scientists in various fields and students of statistics. The main mode of presentation is via code examples with liberal commenting of the code and the output, from the computational as well as the statistical viewpoint. Brief sections introduce the statistical methods before they are used. A supplementary R package can be downloaded and contains the data sets. All examples are directly runnable and all graphics in the text are generated from the examples. The statistical methodology covered includes statistical standard distributions, one- and two-sample tests with continuous data, regression analysis, one- and two-way analysis of variance, regression analysis, analysis of tabular data, and sample size calculations. In addition, the last four chapters contain introductions to multiple linear regression analysis, linear models in general, logistic regression, and survival analysis.

The SAP R/3® Guide to EDI and Interfaces - Axel Angeli 2013-11-11

This book is for both developer and decision makers of R/3 implementation teams who need to understand in-depth and practically the benefits, financial risks and technical backgrounds of IDocs and ALE

in interface development. It describes the implementation of interfaces in an R/3 roll-out, important technologies such as RFC, OLE and Workflow and common standards like EDIFACT, ANSI X.12 or XML. A large number of recipes deliver templates as a starting point for own enhancements. It is for everybody who depends on fast and cost-effective solutions for EDI and it also discusses why many EDI projects are ten times as expensive as they could be. Preparing the reader with the essential knowledge to survive the outrageously fast growing world of data communication and ecommerce via internet and intranet, the book shows in a distilled manner how enterprises using R/3 can efficiently implement Electronic Data Interchange (EDI) both with external partner and with inhouse satellite systems. This book in the tradition of IT-cookbooks, where the reader will find quick recipes and reliable information to cover all aspects of SAP Interfacing and quickly became a standard work for the R/3 world.

R-Calculus, III: Post Three-Valued Logic - Wei Li 2022-12-21

This third volume of the book series shows R-calculus is a Gentzen-typed deduction system which is non-monotonic, and is a concrete belief revision operator which is proved to satisfy the AGM postulates and the DP postulates. In this book, R-calculus is taken as Tableau-based/sequent-based/multisequent-based to preserve the satisfiability of the Theory/sequent/multisequent to revise, or sequent-based, to preserve the satisfiability of the sequent to revise. The R-calculi for Post and three-valued logic is given. This book offers a rich blend of theory and practice. It is suitable for students, researchers and practitioners in the field of logic.

Introducing Monte Carlo Methods with R - Christian Robert 2009-11-24

Computational techniques based on simulation have now become an essential part of the statistician's toolbox. It is thus crucial to provide statisticians with a practical understanding of those methods, and there is no better way to develop intuition and skills for simulation than to use simulation to solve statistical problems. *Introducing Monte Carlo Methods with R* covers the main tools used in statistical simulation from a programmer's point of view, explaining the R implementation of each simulation technique and providing the output for better understanding and comparison. While this book constitutes a comprehensive treatment of simulation methods, the theoretical justification of those methods has been considerably reduced, compared with Robert and Casella (2004). Similarly, the more exploratory and less stable solutions are not covered here. This book does not require a preliminary exposure to the R programming language or to Monte Carlo methods, nor an advanced mathematical background. While many examples are set within a Bayesian framework, advanced expertise in Bayesian statistics is not required. The book covers basic random generation algorithms, Monte Carlo techniques for integration and optimization, convergence diagnoses, Markov chain Monte Carlo methods, including Metropolis {Hastings and Gibbs algorithms, and adaptive algorithms. All chapters include exercises and all R programs are available as an R package called *mcs*. The book appeals to anyone with a practical interest in simulation methods but no previous exposure. It is meant to be useful for students and practitioners in areas such as statistics, signal processing, communications engineering, control theory, econometrics, finance and more. The programming parts are introduced progressively to be accessible to any reader.

Doing Meta-Analysis with R - Mathias Harrer 2021-09-15

Doing Meta-Analysis with R: A Hands-On Guide serves as an accessible introduction on how meta-analyses can be conducted in R. Essential steps for meta-analysis are covered, including calculation and pooling of outcome measures, forest plots, heterogeneity diagnostics, subgroup analyses, meta-regression, methods to control for publication bias, risk of bias assessments and plotting tools. Advanced but highly relevant topics such as network meta-analysis, multi-three-level meta-analyses, Bayesian meta-analysis approaches and SEM meta-analysis are also covered. A companion R package, *dmetar*, is introduced at the beginning of the guide. It contains data sets and several helper functions for the meta and metafor package used in the guide. The programming and statistical background covered in the book are kept at a non-expert level, making the book widely accessible. Features

- Contains two introductory chapters on how to set up an R environment and do basic imports/manipulations of meta-analysis data, including exercises
- Describes statistical concepts clearly and concisely before applying them in R
- Includes step-by-step guidance through the coding required to perform meta-analyses, and a companion R package for the book

Learning R - Richard Cotton 2013-09-09

Learn how to perform data analysis with the R language and software

environment, even if you have little or no programming experience. With the tutorials in this hands-on guide, you'll learn how to use the essential R tools you need to know to analyze data, including data types and programming concepts. The second half of *Learning R* shows you real data analysis in action by covering everything from importing data to publishing your results. Each chapter in the book includes a quiz on what you've learned, and concludes with exercises, most of which involve writing R code. Write a simple R program, and discover what the language can do

- Use data types such as vectors, arrays, lists, data frames, and strings
- Execute code conditionally or repeatedly with branches and loops
- Apply R add-on packages, and package your own work for others
- Learn how to clean data you import from a variety of sources
- Understand data through visualization and summary statistics
- Use statistical models to pass quantitative judgments about data and make predictions
- Learn what to do when things go wrong while writing data analysis code

JavaScript for R - John Coene 2021-07-15

Little known to many, R works just as well with JavaScript—this book delves into the various ways both languages can work together. The ultimate aim of this work is to put the reader at ease with inviting JavaScript in their data science workflow. In that respect the book is not teaching one JavaScript but rather we show how little JavaScript can greatly support and enhance R code. Therefore, the focus is on integrating external JavaScript libraries and no prior knowledge of JavaScript is required. Key Features:

- Easy to pick up.
- An entry way to learning JavaScript for R.
- Covers topics not covered anywhere else.
- Easy to follow along.

Basics of Matrix Algebra for Statistics - Nick Heller 2018-09-03

A Thorough Guide to Elementary Matrix Algebra and Implementation in R Basics of Matrix Algebra for Statistics with R provides a guide to elementary matrix algebra sufficient for undertaking specialized courses, such as multivariate data analysis and linear models. It also covers advanced topics, such as generalized inverses of singular and rectangular matrices and manipulation of partitioned matrices, for those who want to delve deeper into the subject. The book introduces the definition of a matrix and the basic rules of addition, subtraction, multiplication, and inversion. Later topics include determinants, calculation of eigenvectors and eigenvalues, and differentiation of linear and quadratic forms with respect to vectors. The text explores how these concepts arise in statistical techniques, including principal component analysis, canonical correlation analysis, and linear modeling. In addition to the algebraic manipulation of matrices, the book presents numerical examples that illustrate how to perform calculations by hand and using R. Many theoretical and numerical exercises of varying levels of difficulty aid readers in assessing their knowledge of the material. Outline solutions at the back of the book enable readers to verify the techniques required and obtain numerical answers. Avoiding vector spaces and other advanced mathematics, this book shows how to manipulate matrices and perform numerical calculations in R. It prepares readers for higher-level and specialized studies in statistics.

Advanced R - Hadley Wickham 2015-09-15

An Essential Reference for Intermediate and Advanced R Programmers Advanced R presents useful tools and techniques for attacking many types of R programming problems, helping you avoid mistakes and dead ends. With more than ten years of experience programming in R, the author illustrates the elegance, beauty, and flexibility at the heart of R. The book develops the necessary skills to produce quality code that can be used in a variety of circumstances. You will learn:

- The fundamentals of R, including standard data types and functions
- Functional programming as a useful framework for solving wide classes of problems
- The positives and negatives of metaprogramming
- How to write fast, memory-efficient code

This book not only helps current R users become R programmers but also shows existing programmers what's special about R. Intermediate R programmers can dive deeper into R and learn new strategies for solving diverse problems while programmers from other languages can learn the details of R and understand why R works the way it does.

Data Analysis with R, Second Edition - Anthony Fischetti 2018-03-28

Learn, by example, the fundamentals of data analysis as well as several intermediate to advanced methods and techniques ranging from classification and regression to Bayesian methods and MCMC, which can be put to immediate use. Key Features

- Analyze your data using R - the most powerful statistical programming language
- Learn how to implement applied statistics using practical use-cases
- Use popular R packages to work with unstructured and structured data

Book

Description Frequently the tool of choice for academics, R has spread deep into the private sector and can be found in the production pipelines at some of the most advanced and successful enterprises. The power and domain-specificity of R allows the user to express complex analytics easily, quickly, and succinctly. Starting with the basics of R and statistical reasoning, this book dives into advanced predictive analytics, showing how to apply those techniques to real-world data through with real-world examples. Packed with engaging problems and exercises, this book begins with a review of R and its syntax with packages like Rcpp, ggplot2, and dplyr. From there, get to grips with the fundamentals of applied statistics and build on this knowledge to perform sophisticated and powerful analytics. Solve the difficulties relating to performing data analysis in practice and find solutions to working with messy data, large data, communicating results, and facilitating reproducibility. This book is engineered to be an invaluable resource through many stages of anyone's career as a data analyst. What you will learn Gain a thorough understanding of statistical reasoning and sampling theory Employ hypothesis testing to draw inferences from your data Learn Bayesian methods for estimating parameters Train regression, classification, and time series models Handle missing data gracefully using multiple imputation Identify and manage problematic data points Learn how to scale your analyses to larger data with Rcpp, data.table, dplyr, and parallelization Put best practices into effect to make your job easier and facilitate reproducibility Who this book is for Budding data scientists and data analysts who are new to the concept of data analysis, or who want to build efficient analytical models in R will find this book to be useful. No prior exposure to data analysis is needed, although a fundamental understanding of the R programming language is required to get the best out of this book.

R Packages - Hadley Wickham 2015-03-26

Turn your R code into packages that others can easily download and use. This practical book shows you how to bundle reusable R functions, sample data, and documentation together by applying author Hadley Wickham's package development philosophy. In the process, you'll work with devtools, roxygen, and testthat, a set of R packages that automate common development tasks. Devtools encapsulates best practices that Hadley has learned from years of working with this programming language. Ideal for developers, data scientists, and programmers with various backgrounds, this book starts you with the basics and shows you how to improve your package writing over time. You'll learn to focus on what you want your package to do, rather than think about package structure. Learn about the most useful components of an R package, including vignettes and unit tests Automate anything you can, taking advantage of the years of development experience embodied in devtools Get tips on good style, such as organizing functions into files Streamline your development process with devtools Learn the best way to submit your package to the Comprehensive R Archive Network (CRAN) Learn from a well-respected member of the R community who created 30 R packages, including ggplot2, dplyr, and tidyr

Remediation of /r/ for Speech-Language Pathologists - Peter Flipsen Jr. 2021-07-01

Treating older children and adolescents who have difficulty correctly producing /r/ sounds remains an ongoing source of frustration for many clinicians. The new professional resource Remediation of /r/ for Speech-Language Pathologists provides the most up-to-date information on the current understanding of /r/ and the related errors, along with a range of treatment options, to offer a comprehensive tool for Speech-Language Pathologists (SLPs) treating this complex issue. In addition to a discussion of traditional articulation therapy and ways to improve the administration of this technique, this practical text offers a detailed review and explanation of several very promising alternative approaches. Written in what has been described as Dr. Flipsen's "folksy" style, this text is designed for the busy clinician. The first five chapters of Remediation of /r/ for Speech-Language Pathologists delve into the basic information needed to treat /r/. The next six chapters each tackle a specific treatment option. The treatment section begins with a re-examination of traditional articulation therapy and uses research evidence to help clinicians to fine-tune its application. It then progresses to discussing more significant modifications to traditional therapy and introduces several newer approaches to modifying the feedback being provided to the client. For each treatment option, the author presents a solid rationale and the latest evidence, along with practical strategies for their implementation. The final chapter discusses methods for deciding which remediation method to choose when working with /r/ errors.

Applied Spatial Data Analysis with R - Roger S. Bivand 2013-06-21

Applied Spatial Data Analysis with R, second edition, is divided into two basic parts, the first presenting R packages, functions, classes and methods for handling spatial data. This part is of interest to users who need to access and visualise spatial data. Data import and export for many file formats for spatial data are covered in detail, as is the interface between R and the open source GRASS GIS and the handling of spatio-temporal data. The second part showcases more specialised kinds of spatial data analysis, including spatial point pattern analysis, interpolation and geostatistics, areal data analysis and disease mapping. The coverage of methods of spatial data analysis ranges from standard techniques to new developments, and the examples used are largely taken from the spatial statistics literature. All the examples can be run using R contributed packages available from the CRAN website, with code and additional data sets from the book's own website. Compared to the first edition, the second edition covers the more systematic approach towards handling spatial data in R, as well as a number of important and widely used CRAN packages that have appeared since the first edition. This book will be of interest to researchers who intend to use R to handle, visualise, and analyse spatial data. It will also be of interest to spatial data analysts who do not use R, but who are interested in practical aspects of implementing software for spatial data analysis. It is a suitable companion book for introductory spatial statistics courses and for applied methods courses in a wide range of subjects using spatial data, including human and physical geography, geographical information science and geoinformatics, the environmental sciences, ecology, public health and disease control, economics, public administration and political science. The book has a website where complete code examples, data sets, and other support material may be found:

<http://www.asdar-book.org>. The authors have taken part in writing and maintaining software for spatial data handling and analysis with R in concert since 2003.

Biostatistics with R - Babak Shahbaba 2011-12-15

Biostatistics with R is designed around the dynamic interplay among statistical methods, their applications in biology, and their implementation. The book explains basic statistical concepts with a simple yet rigorous language. The development of ideas is in the context of real applied problems, for which step-by-step instructions for using R and R-Commander are provided. Topics include data exploration, estimation, hypothesis testing, linear regression analysis, and clustering with two appendices on installing and using R and R-Commander. A novel feature of this book is an introduction to Bayesian analysis. This author discusses basic statistical analysis through a series of biological examples using R and R-Commander as computational tools. The book is ideal for instructors of basic statistics for biologists and other health scientists. The step-by-step application of statistical methods discussed in this book allows readers, who are interested in statistics and its application in biology, to use the book as a self-learning text.

Hands-On Ensemble Learning with R - Prabhanjan Narayanachar Tattar 2018-07-27

Explore powerful R packages to create predictive models using ensemble methods Key Features Implement machine learning algorithms to build ensemble-efficient models Explore powerful R packages to create predictive models using ensemble methods Learn to build ensemble models on large datasets using a practical approach Book Description Ensemble techniques are used for combining two or more similar or dissimilar machine learning algorithms to create a stronger model. Such a model delivers superior prediction power and can give your datasets a boost in accuracy. Hands-On Ensemble Learning with R begins with the important statistical resampling methods. You will then walk through the central trilogy of ensemble techniques - bagging, random forest, and boosting - then you'll learn how they can be used to provide greater accuracy on large datasets using popular R packages. You will learn how to combine model predictions using different machine learning algorithms to build ensemble models. In addition to this, you will explore how to improve the performance of your ensemble models. By the end of this book, you will have learned how machine learning algorithms can be combined to reduce common problems and build simple efficient ensemble models with the help of real-world examples. What you will learn Carry out an essential review of re-sampling methods, bootstrap, and jackknife Explore the key ensemble methods: bagging, random forests, and boosting Use multiple algorithms to make strong predictive models Enjoy a comprehensive treatment of boosting methods Supplement methods with statistical tests, such as ROC Walk through data structures in classification, regression, survival, and time series data Use the supplied R code to implement ensemble methods Learn

stacking method to combine heterogeneous machine learning models
Who this book is for This book is for you if you are a data scientist or machine learning developer who wants to implement machine learning techniques by building ensemble models with the power of R. You will learn how to combine different machine learning algorithms to perform efficient data processing. Basic knowledge of machine learning techniques and programming knowledge of R would be an added advantage.

R For Dummies - Andrie de Vries 2015-07-07

Mastering R has never been easier Picking up R can be tough, even for seasoned statisticians and data analysts. R For Dummies, 2nd Edition provides a quick and painless way to master all the R you'll ever need. Requiring no prior programming experience and packed with tons of practical examples, step-by-step exercises, and sample code, this friendly and accessible guide shows you how to know your way around lists, data frames, and other R data structures, while learning to interact with other programs, such as Microsoft Excel. You'll learn how to reshape and manipulate data, merge data sets, split and combine data, perform calculations on vectors and arrays, and so much more. R is an open source statistical environment and programming language that has become very popular in varied fields for the management and analysis of data. R provides a wide array of statistical and graphical techniques, and has become the standard among statisticians for software development and data analysis. R For Dummies, 2nd Edition takes the intimidation out of working with R and arms you with the knowledge and know-how to master the programming language of choice among statisticians and data analysts worldwide. Covers downloading, installing, and configuring R Includes tips for getting data in and out of R Offers advice on fitting regression models and ANOVA Provides helpful hints for working with graphics R For Dummies, 2nd Edition is an ideal introduction to R for complete beginners, as well as an excellent technical reference for experienced R programmers.

Geocomputation with R - Robin Lovelace 2019-03-22

Geocomputation with R is for people who want to analyze, visualize and model geographic data with open source software. It is based on R, a statistical programming language that has powerful data processing,

visualization, and geospatial capabilities. The book equips you with the knowledge and skills to tackle a wide range of issues manifested in geographic data, including those with scientific, societal, and environmental implications. This book will interest people from many backgrounds, especially Geographic Information Systems (GIS) users interested in applying their domain-specific knowledge in a powerful open source language for data science, and R users interested in extending their skills to handle spatial data. The book is divided into three parts: (I) Foundations, aimed at getting you up-to-speed with geographic data in R, (II) extensions, which covers advanced techniques, and (III) applications to real-world problems. The chapters cover progressively more advanced topics, with early chapters providing strong foundations on which the later chapters build. Part I describes the nature of spatial datasets in R and methods for manipulating them. It also covers geographic data import/export and transforming coordinate reference systems. Part II represents methods that build on these foundations. It covers advanced map making (including web mapping), "bridges" to GIS, sharing reproducible code, and how to do cross-validation in the presence of spatial autocorrelation. Part III applies the knowledge gained to tackle real-world problems, including representing and modeling transport systems, finding optimal locations for stores or services, and ecological modeling. Exercises at the end of each chapter give you the skills needed to tackle a range of geospatial problems. Solutions for each chapter and supplementary materials providing extended examples are available at

<https://geocompr.github.io/geocompkg/articles/>. Dr. Robin Lovelace is a University Academic Fellow at the University of Leeds, where he has taught R for geographic research over many years, with a focus on transport systems. Dr. Jakub Nowosad is an Assistant Professor in the Department of Geoinformation at the Adam Mickiewicz University in Poznan, where his focus is on the analysis of large datasets to understand environmental processes. Dr. Jannes Muenchow is a Postdoctoral Researcher in the GIScience Department at the University of Jena, where he develops and teaches a range of geographic methods, with a focus on ecological modeling, statistical geocomputing, and predictive mapping. All three are active developers and work on a number of R packages, including stplanr, sabre, and RQGIS.