

# Modeling Techniques In Predictive Analytics With Python And R A To Data Science

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## **Ultimate Step by Step Guide to Machine Learning Using Python** - Daneyal Anis 2020-02-17

**\*Start your Data Science career using Python today!\*** Are you ready to start your new exciting career? Ready to crush your machine learning career goals? Are you overwhelmed with complexity of the books on this subject? Then let this breezy and fun little book on Python and machine learning models make you a data scientist in 7 days! First part of this book introduces Python basics including: 1) Data Structures like Pandas 2) Foundational libraries like Numpy, Seaborn and Scikit-Learn Second part of this book shows you how to build predictive machine learning models step by step using techniques such as: 1) Regression analysis 2) Decision tree analysis 3) Training and testing data models 4) And much more! After reading this book you will be able to: 1) Code in Python with confidence 2) Build new machine learning models from scratch 3) Know how to clean and prepare your data for analytics 4) Speak confidently about statistical analysis techniques Data Science was ranked the fast-growing field by LinkedIn and Data Scientist is one of the most highly sought after and lucrative careers in the world! If you are on the fence about making the leap to a new and lucrative career, this is the book for

you! What sets this book apart from other books on the topic of Python and Machine learning: 1) Step by step code examples and explanation 2) Complex concepts explained visually 3) Real world applicability of the machine learning models introduced 4) Bonus free code samples that you can try yourself without any prior experience in Python! What do I need to get started? You will have a step by step action plan in place once you finish this book and finally feel that you, can master data science and machine learning and start lucrative and rewarding career! Ready to dive in to the exciting world of Python and Machine Learning? Then scroll up to the top and hit that BUY BUTTON!

## Inventory Analytics - Roberto Rossi 2021-05-24

Inventory Analytics provides a comprehensive and accessible introduction to the theory and practice of inventory control - a significant research area central to supply chain planning. The book outlines the foundations of inventory systems and surveys prescriptive analytics models for deterministic inventory control. It further discusses predictive analytics techniques for demand forecasting in inventory control and also examines prescriptive analytics models for stochastic inventory control. Inventory Analytics is the first book of its kind to adopt

a practicable, Python-driven approach to illustrating theories and concepts via computational examples, with each model covered in the book accompanied by its Python code. Originating as a collection of self-contained lectures, Inventory Analytics will be an indispensable resource for practitioners, researchers, teachers, and students alike.

### **Modeling Techniques in Predictive Analytics with Python and R -**

Thomas W. Miller 2014

Using Python and R, the author addresses multiple business challenges, including segmentation, brand positioning, product choice modeling, pricing research, finance, sports, text analytics, sentiment analysis and social network analysis, cross-sectional data, time series, spatial and spatio-temporal data.

*Web and Network Data Science* - Thomas W. Miller 2015

Master modern web and network data modeling: both theory and applications. In *Web and Network Data Science*, a top faculty member of Northwestern University's prestigious analytics program presents the first fully-integrated treatment of both the business and academic elements of web and network modeling for predictive analytics. Some books in this field focus either entirely on business issues (e.g., Google Analytics and SEO); others are strictly academic (covering topics such as sociology, complexity theory, ecology, applied physics, and economics). This text gives today's managers and students what they really need: integrated coverage of concepts, principles, and theory in the context of real-world applications. Building on his pioneering Web Analytics course at Northwestern University, Thomas W. Miller covers usability testing, Web site performance, usage analysis, social media platforms, search engine optimization (SEO), and many other topics. He balances this practical coverage with accessible and up-to-date introductions to both social network analysis and network science, demonstrating how these disciplines can be used to solve real business problems.

**Become a Python Data Analyst** - Alvaro Fuentes 2018-08-31

Enhance your data analysis and predictive modeling skills using popular Python tools. Key Features: Cover all fundamental libraries for operation and manipulation of Python for data analysis. Implement real-world

datasets to perform predictive analytics with Python. Access modern data analysis techniques and detailed code with scikit-learn and SciPy. Book Description: Python is one of the most common and popular languages preferred by leading data analysts and statisticians for working with massive datasets and complex data visualizations. *Become a Python Data Analyst* introduces Python's most essential tools and libraries necessary to work with the data analysis process, right from preparing data to performing simple statistical analyses and creating meaningful data visualizations. In this book, we will cover Python libraries such as NumPy, pandas, matplotlib, seaborn, SciPy, and scikit-learn, and apply them in practical data analysis and statistics examples. As you make your way through the chapters, you will learn to efficiently use the Jupyter Notebook to operate and manipulate data using NumPy and the pandas library. In the concluding chapters, you will gain experience in building simple predictive models and carrying out statistical computation and analysis using rich Python tools and proven data analysis techniques. By the end of this book, you will have hands-on experience performing data analysis with Python. What you will learn: Explore important Python libraries and learn to install Anaconda distribution. Understand the basics of NumPy. Produce informative and useful visualizations for analyzing data. Perform common statistical calculations. Build predictive models and understand the principles of predictive analytics. Who this book is for: *Become a Python Data Analyst* is for entry-level data analysts, data engineers, and BI professionals who want to make complete use of Python tools for performing efficient data analysis. Prior knowledge of Python programming is necessary to understand the concepts covered in this book.

*Marketing Data Science* - Thomas W. Miller 2015-05-02

Now, a leader of Northwestern University's prestigious analytics program presents a fully-integrated treatment of both the business and academic elements of marketing applications in predictive analytics. Writing for both managers and students, Thomas W. Miller explains essential concepts, principles, and theory in the context of real-world applications. Building on Miller's pioneering program, *Marketing Data*

Science thoroughly addresses segmentation, target marketing, brand and product positioning, new product development, choice modeling, recommender systems, pricing research, retail site selection, demand estimation, sales forecasting, customer retention, and lifetime value analysis. Starting where Miller's widely-praised Modeling Techniques in Predictive Analytics left off, he integrates crucial information and insights that were previously segregated in texts on web analytics, network science, information technology, and programming. Coverage includes: The role of analytics in delivering effective messages on the web Understanding the web by understanding its hidden structures Being recognized on the web - and watching your own competitors Visualizing networks and understanding communities within them Measuring sentiment and making recommendations Leveraging key data science methods: databases/data preparation, classical/Bayesian statistics, regression/classification, machine learning, and text analytics Six complete case studies address exceptionally relevant issues such as: separating legitimate email from spam; identifying legally-relevant information for lawsuit discovery; gleaning insights from anonymous web surfing data, and more. This text's extensive set of web and network problems draw on rich public-domain data sources; many are accompanied by solutions in Python and/or R. Marketing Data Science will be an invaluable resource for all students, faculty, and professional marketers who want to use business analytics to improve marketing performance.

**Marketing Data Science** - Thomas W. Miller 2015-05-11

Now , a leader of Northwestern University's prestigious analytics program presents a fully-integrated treatment of both the business and academic elements of marketing applications in predictive analytics. Writing for both managers and students, Thomas W. Miller explains essential concepts, principles, and theory in the context of real-world applications. Building on Miller's pioneering program, Marketing Data Science thoroughly addresses segmentation, target marketing, brand and product positioning, new product development, choice modeling, recommender systems, pricing research, retail site selection, demand

estimation, sales forecasting, customer retention, and lifetime value analysis. Starting where Miller's widely-praised Modeling Techniques in Predictive Analytics left off, he integrates crucial information and insights that were previously segregated in texts on web analytics, network science, information technology, and programming. Coverage includes: The role of analytics in delivering effective messages on the web Understanding the web by understanding its hidden structures Being recognized on the web - and watching your own competitors Visualizing networks and understanding communities within them Measuring sentiment and making recommendations Leveraging key data science methods: databases/data preparation, classical/Bayesian statistics, regression/classification, machine learning, and text analytics Six complete case studies address exceptionally relevant issues such as: separating legitimate email from spam; identifying legally-relevant information for lawsuit discovery; gleaning insights from anonymous web surfing data, and more. This text's extensive set of web and network problems draw on rich public-domain data sources; many are accompanied by solutions in Python and/or R. Marketing Data Science will be an invaluable resource for all students, faculty, and professional marketers who want to use business analytics to improve marketing performance.

**Data Science and Predictive Analytics** - Ivo D. Dinov 2018-08-27

Over the past decade, Big Data have become ubiquitous in all economic sectors, scientific disciplines, and human activities. They have led to striking technological advances, affecting all human experiences. Our ability to manage, understand, interrogate, and interpret such extremely large, multisource, heterogeneous, incomplete, multiscale, and incongruent data has not kept pace with the rapid increase of the volume, complexity and proliferation of the deluge of digital information. There are three reasons for this shortfall. First, the volume of data is increasing much faster than the corresponding rise of our computational processing power (Kryder's law > Moore's law). Second, traditional discipline-bounds inhibit expeditious progress. Third, our education and training activities have fallen behind the accelerated trend of scientific,

information, and communication advances. There are very few rigorous instructional resources, interactive learning materials, and dynamic training environments that support active data science learning. The textbook balances the mathematical foundations with dexterous demonstrations and examples of data, tools, modules and workflows that serve as pillars for the urgently needed bridge to close that supply and demand predictive analytic skills gap. Exposing the enormous opportunities presented by the tsunami of Big data, this textbook aims to identify specific knowledge gaps, educational barriers, and workforce readiness deficiencies. Specifically, it focuses on the development of a transdisciplinary curriculum integrating modern computational methods, advanced data science techniques, innovative biomedical applications, and impactful health analytics. The content of this graduate-level textbook fills a substantial gap in integrating modern engineering concepts, computational algorithms, mathematical optimization, statistical computing and biomedical inference. Big data analytic techniques and predictive scientific methods demand broad transdisciplinary knowledge, appeal to an extremely wide spectrum of readers/learners, and provide incredible opportunities for engagement throughout the academy, industry, regulatory and funding agencies. The two examples below demonstrate the powerful need for scientific knowledge, computational abilities, interdisciplinary expertise, and modern technologies necessary to achieve desired outcomes (improving human health and optimizing future return on investment). This can only be achieved by appropriately trained teams of researchers who can develop robust decision support systems using modern techniques and effective end-to-end protocols, like the ones described in this textbook. • A geriatric neurologist is examining a patient complaining of gait imbalance and posture instability. To determine if the patient may suffer from Parkinson's disease, the physician acquires clinical, cognitive, phenotypic, imaging, and genetics data (Big Data). Most clinics and healthcare centers are not equipped with skilled data analytic teams that can wrangle, harmonize and interpret such complex datasets. A learner that completes a course of study using this textbook will have the

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

[Python for Data Analysis](#) - Wes McKinney 2017-09-25

Get complete instructions for manipulating, processing, cleaning, and crunching datasets in Python. Updated for Python 3.6, the second edition of this hands-on guide is packed with practical case studies that show you how to solve a broad set of data analysis problems effectively. You'll learn the latest versions of pandas, NumPy, IPython, and Jupyter in the process. Written by Wes McKinney, the creator of the Python pandas project, this book is a practical, modern introduction to data science tools in Python. It's ideal for analysts new to Python and for Python programmers new to data science and scientific computing. Data files and related material are available on GitHub. Use the IPython shell and Jupyter notebook for exploratory computing Learn basic and advanced features in NumPy (Numerical Python) Get started with data analysis tools in the pandas library Use flexible tools to load, clean, transform,

merge, and reshape data Create informative visualizations with matplotlib Apply the pandas groupby facility to slice, dice, and summarize datasets Analyze and manipulate regular and irregular time series data Learn how to solve real-world data analysis problems with thorough, detailed examples

*Feature Engineering and Selection* - Max Kuhn 2019-07-25

The process of developing predictive models includes many stages. Most resources focus on the modeling algorithms but neglect other critical aspects of the modeling process. This book describes techniques for finding the best representations of predictors for modeling and for finding the best subset of predictors for improving model performance. A variety of example data sets are used to illustrate the techniques along with R programs for reproducing the results.

*Handbook of Regression Modeling in People Analytics* - Keith McNulty 2021-07-29

Despite the recent rapid growth in machine learning and predictive analytics, many of the statistical questions that are faced by researchers and practitioners still involve explaining why something is happening. Regression analysis is the best 'swiss army knife' we have for answering these kinds of questions. This book is a learning resource on inferential statistics and regression analysis. It teaches how to do a wide range of statistical analyses in both R and in Python, ranging from simple hypothesis testing to advanced multivariate modelling. Although it is primarily focused on examples related to the analysis of people and talent, the methods easily transfer to any discipline. The book hits a 'sweet spot' where there is just enough mathematical theory to support a strong understanding of the methods, but with a step-by-step guide and easily reproducible examples and code, so that the methods can be put into practice immediately. This makes the book accessible to a wide readership, from public and private sector analysts and practitioners to students and researchers. Key Features: • 16 accompanying datasets across a wide range of contexts (e.g. academic, corporate, sports, marketing) • Clear step-by-step instructions on executing the analyses. • Clear guidance on how to interpret results. • Primary instruction in R but

added sections for Python coders. • Discussion exercises and data exercises for each of the main chapters. • Final chapter of practice material and datasets ideal for class homework or project work.

[Modeling Techniques in Predictive Analytics](#) - Thomas W. Miller 2014-10

Today, successful firms win by understanding their data more deeply than competitors do. They compete based on analytics. In *Modeling Techniques in Predictive Analytics*, Revised Edition, the leader of Northwestern University's prestigious analytics program brings together all the up-to-date concepts, techniques, and R code you need to excel in analytics. Thomas W. Miller's balanced approach combines business context and quantitative tools, appealing to managers, analysts, programmers, and students alike. This Revised Edition is updated with new sources throughout, and has been reorganized to be completely modular. Each chapter now stands completely on its own - thereby supporting even more flexible learning paths, and helping readers quickly access all the knowledge they need to solve any category of problem. Miller addresses multiple business challenges and business cases, including segmentation, brand positioning, product choice modeling, pricing research, finance, sports, Web and text analytics, and social network analysis. He illuminates the use of cross-sectional data, time series, spatial, and even spatio-temporal data. For each problem, Miller explains: Why the problem is significant What data is relevant How to explore your data How to model your data - first conceptually, with words and figures; and then with mathematics and programs Miller walks through model construction, explanatory variable subset selection, and validation, demonstrating best practices for improving out-of-sample predictive performance. He employs data visualization and statistical graphics in exploring data, presenting models, and evaluating performance. Extensive example code is presented in R, today's #1 system for applied statistics, statistical research, and predictive modeling; all code is set apart from other text so it's easy to find for those who want it (and easy to skip for those who don't).

**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.

**Healthcare Analytics Made Simple** - Vikas (Vik) Kumar 2018-07-31

Add a touch of data analytics to your healthcare systems and get insightful outcomes  
Key Features  
Perform healthcare analytics with Python and SQL  
Build predictive models on real healthcare data with pandas and scikit-learn  
Use analytics to improve healthcare performance  
Book Description  
In recent years, machine learning technologies and analytics have been widely utilized across the healthcare sector. Healthcare Analytics Made Simple bridges the gap between practising doctors and data scientists. It equips the data scientists' work with healthcare data and allows them to gain better insight from this data in order to improve healthcare outcomes. This book is a complete overview of machine learning for healthcare analytics, briefly describing the current healthcare landscape, machine learning algorithms, and Python and SQL programming languages. The step-by-step instructions teach you how to obtain real healthcare data and perform descriptive, predictive, and prescriptive analytics using popular Python packages such as pandas and scikit-learn. The latest research results in disease detection and healthcare image analysis are reviewed. By the end of this book, you will understand how to use Python for healthcare data analysis, how to import, collect, clean, and refine data from electronic health record (EHR) surveys, and how to make predictive models with this data through real-world algorithms and code examples. What you will learn  
Gain valuable insight into healthcare incentives, finances, and legislation  
Discover the connection between machine learning and healthcare processes  
Use SQL and Python to analyze data  
Measure healthcare quality and provider performance  
Identify features and attributes to build successful healthcare models  
Build predictive models using real-world healthcare data  
Become an expert in predictive modeling with structured clinical data  
See what lies ahead for healthcare

analytics Who this book is for Healthcare Analytics Made Simple is for you if you are a developer who has a working knowledge of Python or a related programming language, although you are new to healthcare or predictive modeling with healthcare data. Clinicians interested in analytics and healthcare computing will also benefit from this book. This book can also serve as a textbook for students enrolled in an introductory course on machine learning for healthcare.

[Data Mining for Business Analytics](#) - Galit Shmueli 2019-10-14

*Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python* presents an applied approach to data mining concepts and methods, using Python software for illustration Readers will learn how to implement a variety of popular data mining algorithms in Python (a free and open-source software) to tackle business problems and opportunities. This is the sixth version of this successful text, and the first using Python. It covers both statistical and machine learning algorithms for prediction, classification, visualization, dimension reduction, recommender systems, clustering, text mining and network analysis. It also includes: A new co-author, Peter Gedeck, who brings both experience teaching business analytics courses using Python, and expertise in the application of machine learning methods to the drug-discovery process A new section on ethical issues in data mining Updates and new material based on feedback from instructors teaching MBA, undergraduate, diploma and executive courses, and from their students More than a dozen case studies demonstrating applications for the data mining techniques described End-of-chapter exercises that help readers gauge and expand their comprehension and competency of the material presented A companion website with more than two dozen data sets, and instructor materials including exercise solutions, PowerPoint slides, and case solutions *Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python* is an ideal textbook for graduate and upper-undergraduate level courses in data mining, predictive analytics, and business analytics. This new edition is also an excellent reference for analysts, researchers, and practitioners working with quantitative methods in the fields of business, finance, marketing, computer science,

and information technology. “This book has by far the most comprehensive review of business analytics methods that I have ever seen, covering everything from classical approaches such as linear and logistic regression, through to modern methods like neural networks, bagging and boosting, and even much more business specific procedures such as social network analysis and text mining. If not the bible, it is at the least a definitive manual on the subject.” —Gareth M. James, University of Southern California and co-author (with Witten, Hastie and Tibshirani) of the best-selling book *An Introduction to Statistical Learning, with Applications in R*

*Text Analytics with Python* - Dipanjan Sarkar 2019-05-21

Leverage Natural Language Processing (NLP) in Python and learn how to set up your own robust environment for performing text analytics. This second edition has gone through a major revamp and introduces several significant changes and new topics based on the recent trends in NLP. You’ll see how to use the latest state-of-the-art frameworks in NLP, coupled with machine learning and deep learning models for supervised sentiment analysis powered by Python to solve actual case studies. Start by reviewing Python for NLP fundamentals on strings and text data and move on to engineering representation methods for text data, including both traditional statistical models and newer deep learning-based embedding models. Improved techniques and new methods around parsing and processing text are discussed as well. Text summarization and topic models have been overhauled so the book showcases how to build, tune, and interpret topic models in the context of an interest dataset on NIPS conference papers. Additionally, the book covers text similarity techniques with a real-world example of movie recommenders, along with sentiment analysis using supervised and unsupervised techniques. There is also a chapter dedicated to semantic analysis where you’ll see how to build your own named entity recognition (NER) system from scratch. While the overall structure of the book remains the same, the entire code base, modules, and chapters has been updated to the latest Python 3.x release. What You'll Learn • Understand NLP and text syntax, semantics and structure • Discover text cleaning and feature

engineering • Review text classification and text clustering • Assess text summarization and topic models • Study deep learning for NLP Who This Book Is For IT professionals, data analysts, developers, linguistic experts, data scientists and engineers and basically anyone with a keen interest in linguistics, analytics and generating insights from textual data.

**Data Science for Marketing Analytics** - Mirza Rahim Baig 2021-09-07 Turbocharge your marketing plans by making the leap from simple descriptive statistics in Excel to sophisticated predictive analytics with the Python programming language Key Features Use data analytics and machine learning in a sales and marketing context Gain insights from data to make better business decisions Build your experience and confidence with realistic hands-on practice Book Description Unleash the power of data to reach your marketing goals with this practical guide to data science for business. This book will help you get started on your journey to becoming a master of marketing analytics with Python. You'll work with relevant datasets and build your practical skills by tackling engaging exercises and activities that simulate real-world market analysis projects. You'll learn to think like a data scientist, build your problem-solving skills, and discover how to look at data in new ways to deliver business insights and make intelligent data-driven decisions. As well as learning how to clean, explore, and visualize data, you'll implement machine learning algorithms and build models to make predictions. As you work through the book, you'll use Python tools to analyze sales, visualize advertising data, predict revenue, address customer churn, and implement customer segmentation to understand behavior. By the end of this book, you'll have the knowledge, skills, and confidence to implement data science and machine learning techniques to better understand your marketing data and improve your decision-making. What you will learn Load, clean, and explore sales and marketing data using pandas Form and test hypotheses using real data sets and analytics tools Visualize patterns in customer behavior using Matplotlib Use advanced machine learning models like random forest and SVM Use various unsupervised learning algorithms for customer segmentation Use supervised learning techniques for sales

prediction Evaluate and compare different models to get the best outcomes Optimize models with hyperparameter tuning and SMOTE Who this book is for This marketing book is for anyone who wants to learn how to use Python for cutting-edge marketing analytics. Whether you're a developer who wants to move into marketing, or a marketing analyst who wants to learn more sophisticated tools and techniques, this book will get you on the right path. Basic prior knowledge of Python and experience working with data will help you access this book more easily.

**Introduction to Machine Learning with Python** - Andreas C. Müller 2016-09-26

Machine learning has become an integral part of many commercial applications and research projects, but this field is not exclusive to large companies with extensive research teams. If you use Python, even as a beginner, this book will teach you practical ways to build your own machine learning solutions. With all the data available today, machine learning applications are limited only by your imagination. You'll learn the steps necessary to create a successful machine-learning application with Python and the scikit-learn library. Authors Andreas Müller and Sarah Guido focus on the practical aspects of using machine learning algorithms, rather than the math behind them. Familiarity with the NumPy and matplotlib libraries will help you get even more from this book. With this book, you'll learn: Fundamental concepts and applications of machine learning Advantages and shortcomings of widely used machine learning algorithms How to represent data processed by machine learning, including which data aspects to focus on Advanced methods for model evaluation and parameter tuning The concept of pipelines for chaining models and encapsulating your workflow Methods for working with text data, including text-specific processing techniques Suggestions for improving your machine learning and data science skills *Training Systems Using Python Statistical Modeling* - Curtis Miller 2019-05-20

Leverage the power of Python and statistical modeling techniques for building accurate predictive models Key Features Get introduced to Python's rich suite of libraries for statistical modeling Implement

regression, clustering and train neural networks from scratch Includes real-world examples on training end-to-end machine learning systems in Python Book Description Python's ease of use and multi-purpose nature has led it to become the choice of tool for many data scientists and machine learning developers today. Its rich libraries are widely used for data analysis, and more importantly, for building state-of-the-art predictive models. This book takes you through an exciting journey, of using these libraries to implement effective statistical models for predictive analytics. You'll start by diving into classical statistical analysis, where you will learn to compute descriptive statistics using pandas. You will look at supervised learning, where you will explore the principles of machine learning and train different machine learning models from scratch. You will also work with binary prediction models, such as data classification using k-nearest neighbors, decision trees, and random forests. This book also covers algorithms for regression analysis, such as ridge and lasso regression, and their implementation in Python. You will also learn how neural networks can be trained and deployed for more accurate predictions, and which Python libraries can be used to implement them. By the end of this book, you will have all the knowledge you need to design, build, and deploy enterprise-grade statistical models for machine learning using Python and its rich ecosystem of libraries for predictive analytics. What you will learn Understand the importance of statistical modeling Learn about the various Python packages for statistical analysis Implement algorithms such as Naive Bayes, random forests, and more Build predictive models from scratch using Python's scikit-learn library Implement regression analysis and clustering Learn how to train a neural network in Python Who this book is for If you are a data scientist, a statistician or a machine learning developer looking to train and deploy effective machine learning models using popular statistical techniques, then this book is for you. Knowledge of Python programming is required to get the most out of this book.

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

Understand, evaluate, and visualize data About This Book Learn basic steps of data analysis and how to use Python and its packages A step-by-

step guide to predictive modeling including tips, tricks, and best practices Effectively visualize a broad set of analyzed data and generate effective results Who This Book Is For This book is for Python Developers who are keen to get into data analysis and wish to visualize their analyzed data in a more efficient and insightful manner. What You Will Learn Get acquainted with NumPy and use arrays and array-oriented computing in data analysis Process and analyze data using the time-series capabilities of Pandas Understand the statistical and mathematical concepts behind predictive analytics algorithms Data visualization with Matplotlib Interactive plotting with NumPy, Scipy, and MKL functions Build financial models using Monte-Carlo simulations Create directed graphs and multi-graphs Advanced visualization with D3 In Detail You will start the course with an introduction to the principles of data analysis and supported libraries, along with NumPy basics for statistics and data processing. Next, you will overview the Pandas package and use its powerful features to solve data-processing problems. Moving on, you will get a brief overview of the Matplotlib API .Next, you will learn to manipulate time and data structures, and load and store data in a file or database using Python packages. You will learn how to apply powerful packages in Python to process raw data into pure and helpful data using examples. You will also get a brief overview of machine learning algorithms, that is, applying data analysis results to make decisions or building helpful products such as recommendations and predictions using Scikit-learn. After this, you will move on to a data analytics specialization—predictive analytics. Social media and IOT have resulted in an avalanche of data. You will get started with predictive analytics using Python. You will see how to create predictive models from data. You will get balanced information on statistical and mathematical concepts, and implement them in Python using libraries such as Pandas, scikit-learn, and NumPy. You'll learn more about the best predictive modeling algorithms such as Linear Regression, Decision Tree, and Logistic Regression. Finally, you will master best practices in predictive modeling. After this, you will get all the practical guidance you need to help you on the journey to effective data visualization. Starting with a

chapter on data frameworks, which explains the transformation of data into information and eventually knowledge, this path subsequently cover the complete visualization process using the most popular Python libraries with working examples This Learning Path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: Getting Started with Python Data Analysis, Phuong Vo.T.H & Martin Czygan Learning Predictive Analytics with Python, Ashish Kumar Mastering Python Data Visualization, Kirthi Raman Style and approach The course acts as a step-by-step guide to get you familiar with data analysis and the libraries supported by Python with the help of real-world examples and datasets. It also helps you gain practical insights into predictive modeling by implementing predictive-analytics algorithms on public datasets with Python. The course offers a wealth of practical guidance to help you on this journey to data visualization

**Foundations of Predictive Analytics** - James Wu 2012-02-15

Drawing on the authors' two decades of experience in applied modeling and data mining, Foundations of Predictive Analytics presents the fundamental background required for analyzing data and building models for many practical applications, such as consumer behavior modeling, risk and marketing analytics, and other areas. It also discusses a variety of practical topics that are frequently missing from similar texts. The book begins with the statistical and linear algebra/matrix foundation of modeling methods, from distributions to cumulant and copula functions to Cornish-Fisher expansion and other useful but hard-to-find statistical techniques. It then describes common and unusual linear methods as well as popular nonlinear modeling approaches, including additive models, trees, support vector machine, fuzzy systems, clustering, naïve Bayes, and neural nets. The authors go on to cover methodologies used in time series and forecasting, such as ARIMA, GARCH, and survival analysis. They also present a range of optimization techniques and explore several special topics, such as Dempster-Shafer theory. An in-depth collection of the most important fundamental material on predictive analytics, this self-contained book provides the

necessary information for understanding various techniques for exploratory data analysis and modeling. It explains the algorithmic details behind each technique (including underlying assumptions and mathematical formulations) and shows how to prepare and encode data, select variables, use model goodness measures, normalize odds, and perform reject inference. Web Resource The book's website at [www.DataMinerXL.com](http://www.DataMinerXL.com) offers the DataMinerXL software for building predictive models. The site also includes more examples and information on modeling.

Python: Advanced Predictive Analytics - Joseph Babcock 2017-12-27

Gain practical insights by exploiting data in your business to build advanced predictive modeling applications About This Book A step-by-step guide to predictive modeling including lots of tips, tricks, and best practices Learn how to use popular predictive modeling algorithms such as Linear Regression, Decision Trees, Logistic Regression, and Clustering Master open source Python tools to build sophisticated predictive models Who This Book Is For This book is designed for business analysts, BI analysts, data scientists, or junior level data analysts who are ready to move on from a conceptual understanding of advanced analytics and become an expert in designing and building advanced analytics solutions using Python. If you are familiar with coding in Python (or some other programming/statistical/scripting language) but have never used or read about predictive analytics algorithms, this book will also help you. What You Will Learn Understand the statistical and mathematical concepts behind predictive analytics algorithms and implement them using Python libraries Get to know various methods for importing, cleaning, sub-setting, merging, joining, concatenating, exploring, grouping, and plotting data with pandas and NumPy Master the use of Python notebooks for exploratory data analysis and rapid prototyping Get to grips with applying regression, classification, clustering, and deep learning algorithms Discover advanced methods to analyze structured and unstructured data Visualize the performance of models and the insights they produce Ensure the robustness of your analytic applications by mastering the best practices of predictive

analysis In Detail Social Media and the Internet of Things have resulted in an avalanche of data. Data is powerful but not in its raw form; it needs to be processed and modeled, and Python is one of the most robust tools out there to do so. It has an array of packages for predictive modeling and a suite of IDEs to choose from. Using the Python programming language, analysts can use these sophisticated methods to build scalable analytic applications. This book is your guide to getting started with predictive analytics using Python. You'll balance both statistical and mathematical concepts, and implement them in Python using libraries such as pandas, scikit-learn, and NumPy. Through case studies and code examples using popular open-source Python libraries, this book illustrates the complete development process for analytic applications. Covering a wide range of algorithms for classification, regression, clustering, as well as cutting-edge techniques such as deep learning, this book illustrates explains how these methods work. You will learn to choose the right approach for your problem and how to develop engaging visualizations to bring to life the insights of predictive modeling. Finally, you will learn best practices in predictive modeling, as well as the different applications of predictive modeling in the modern world. The course provides you with highly practical content from the following Packt books: 1. Learning Predictive Analytics with Python 2. Mastering Predictive Analytics with Python Style and approach This course aims to create a smooth learning path that will teach you how to effectively perform predictive analytics using Python. Through this comprehensive course, you'll learn the basics of predictive analytics and progress to predictive modeling in the modern world.

**Web and Network Data Science** - Thomas W. Miller 2014-12-19

Master modern web and network data modeling: both theory and applications. In Web and Network Data Science, a top faculty member of Northwestern University's prestigious analytics program presents the first fully-integrated treatment of both the business and academic elements of web and network modeling for predictive analytics. Some books in this field focus either entirely on business issues (e.g., Google Analytics and SEO); others are strictly academic (covering topics such as

sociology, complexity theory, ecology, applied physics, and economics). This text gives today's managers and students what they really need: integrated coverage of concepts, principles, and theory in the context of real-world applications. Building on his pioneering Web Analytics course at Northwestern University, Thomas W. Miller covers usability testing, Web site performance, usage analysis, social media platforms, search engine optimization (SEO), and many other topics. He balances this practical coverage with accessible and up-to-date introductions to both social network analysis and network science, demonstrating how these disciplines can be used to solve real business problems.

**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.

**Sports Analytics and Data Science** - Thomas W. Miller 2015-11-18

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. This up-to-the-minute reference will help you master all three facets of sports analytics — and use it to win! Sports Analytics and Data Science is the most accessible and practical guide to sports analytics for everyone who cares about winning and everyone who is interested in data science. You'll discover how successful sports analytics blends business and sports savvy, modern information technology, and sophisticated modeling techniques. You'll master the discipline through realistic sports vignettes and intuitive data

visualizations—not complex math. Every chapter focuses on one key sports analytics application. Miller guides you through assessing players and teams, predicting scores and making game-day decisions, crafting brands and marketing messages, increasing revenue and profitability, and much more. Step by step, you'll learn how analysts transform raw data and analytical models into wins: both on the field and in any sports business.

### **Predictive Analytics For Dummies** - Anasse Bari 2014-03-06

Combine business sense, statistics, and computers in a new and intuitive way, thanks to Big Data Predictive analytics is a branch of data mining that helps predict probabilities and trends. Predictive Analytics For Dummies explores the power of predictive analytics and how you can use it to make valuable predictions for your business, or in fields such as advertising, fraud detection, politics, and others. This practical book does not bog you down with loads of mathematical or scientific theory, but instead helps you quickly see how to use the right algorithms and tools to collect and analyze data and apply it to make predictions. Topics include using structured and unstructured data, building models, creating a predictive analysis roadmap, setting realistic goals, budgeting, and much more. Shows readers how to use Big Data and data mining to discover patterns and make predictions for tech-savvy businesses Helps readers see how to shepherd predictive analytics projects through their companies Explains just enough of the science and math, but also focuses on practical issues such as protecting project budgets, making good presentations, and more Covers nuts-and-bolts topics including predictive analytics basics, using structured and unstructured data, data mining, and algorithms and techniques for analyzing data Also covers clustering, association, and statistical models; creating a predictive analytics roadmap; and applying predictions to the web, marketing, finance, health care, and elsewhere Propose, produce, and protect predictive analytics projects through your company with Predictive Analytics For Dummies.

### Data Science Solutions with Python - Tshepo Chris Nokeri 2021-10-26

Apply supervised and unsupervised learning to solve practical and real-

world big data problems. This book teaches you how to engineer features, optimize hyperparameters, train and test models, develop pipelines, and automate the machine learning (ML) process. The book covers an in-memory, distributed cluster computing framework known as PySpark, machine learning framework platforms known as scikit-learn, PySpark MLlib, H2O, and XGBoost, and a deep learning (DL) framework known as Keras. The book starts off presenting supervised and unsupervised ML and DL models, and then it examines big data frameworks along with ML and DL frameworks. Author Tshepo Chris Nokeri considers a parametric model known as the Generalized Linear Model and a survival regression model known as the Cox Proportional Hazards model along with Accelerated Failure Time (AFT). Also presented is a binary classification model (logistic regression) and an ensemble model (Gradient Boosted Trees). The book introduces DL and an artificial neural network known as the Multilayer Perceptron (MLP) classifier. A way of performing cluster analysis using the K-Means model is covered. Dimension reduction techniques such as Principal Components Analysis and Linear Discriminant Analysis are explored. And automated machine learning is unpacked. This book is for intermediate-level data scientists and machine learning engineers who want to learn how to apply key big data frameworks and ML and DL frameworks. You will need prior knowledge of the basics of statistics, Python programming, probability theories, and predictive analytics. What You Will Learn Understand widespread supervised and unsupervised learning, including key dimension reduction techniques Know the big data analytics layers such as data visualization, advanced statistics, predictive analytics, machine learning, and deep learning Integrate big data frameworks with a hybrid of machine learning frameworks and deep learning frameworks Design, build, test, and validate skilled machine models and deep learning models Optimize model performance using data transformation, regularization, outlier remedying, hyperparameter optimization, and data split ratio alteration Who This Book Is For Data scientists and machine learning engineers with basic knowledge and understanding of Python programming, probability theories, and

predictive analytics

**Explanatory Model Analysis** - Przemyslaw Biecek 2021-02-15

Explanatory Model Analysis Explore, Explain and Examine Predictive Models is a set of methods and tools designed to build better predictive models and to monitor their behaviour in a changing environment. Today, the true bottleneck in predictive modelling is neither the lack of data, nor the lack of computational power, nor inadequate algorithms, nor the lack of flexible models. It is the lack of tools for model exploration (extraction of relationships learned by the model), model explanation (understanding the key factors influencing model decisions) and model examination (identification of model weaknesses and evaluation of model's performance). This book presents a collection of model agnostic methods that may be used for any black-box model together with real-world applications to classification and regression problems.

*Machine Learning in Python* - Michael Bowles 2015-04-27

Learn a simpler and more effective way to analyze data and predict outcomes with Python Machine Learning in Python shows you how to successfully analyze data using only two core machine learning algorithms, and how to apply them using Python. By focusing on two algorithm families that effectively predict outcomes, this book is able to provide full descriptions of the mechanisms at work, and the examples that illustrate the machinery with specific, hackable code. The algorithms are explained in simple terms with no complex math and applied using Python, with guidance on algorithm selection, data preparation, and using the trained models in practice. You will learn a core set of Python programming techniques, various methods of building predictive models, and how to measure the performance of each model to ensure that the right one is used. The chapters on penalized linear regression and ensemble methods dive deep into each of the algorithms, and you can use the sample code in the book to develop your own data analysis solutions. Machine learning algorithms are at the core of data analytics and visualization. In the past, these methods required a deep background in math and statistics, often in combination with the specialized R

programming language. This book demonstrates how machine learning can be implemented using the more widely used and accessible Python programming language. Predict outcomes using linear and ensemble algorithm families Build predictive models that solve a range of simple and complex problems Apply core machine learning algorithms using Python Use sample code directly to build custom solutions Machine learning doesn't have to be complex and highly specialized. Python makes this technology more accessible to a much wider audience, using methods that are simpler, effective, and well tested. Machine Learning in Python shows you how to do this, without requiring an extensive background in math or statistics.

*Statistical and Machine-Learning Data Mining*: - Bruce Ratner  
2017-07-12

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

the most commonly experienced problems in predictive modeling and analysis of big data. The author addresses each methodology and assigns its application to a specific type of problem. To better ground readers, the book provides an in-depth discussion of the basic methodologies of predictive modeling and analysis. While this type of overview has been attempted before, this approach offers a truly nitty-gritty, step-by-step method that both tyros and experts in the field can enjoy playing with.

### **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.

### Mastering Predictive Analytics with scikit-learn and TensorFlow - Alvaro Fuentes 2018-09-29

Learn advanced techniques to improve the performance and quality of your predictive models Key Features Use ensemble methods to improve the performance of predictive analytics models Implement feature selection, dimensionality reduction, and cross-validation techniques Develop neural network models and master the basics of deep learning Book Description Python is a programming language that provides a wide range of features that can be used in the field of data science. Mastering Predictive Analytics with scikit-learn and TensorFlow covers various implementations of ensemble methods, how they are used

with real-world datasets, and how they improve prediction accuracy in classification and regression problems. This book starts with ensemble methods and their features. You will see that scikit-learn provides tools for choosing hyperparameters for models. As you make your way through the book, you will cover the nitty-gritty of predictive analytics and explore its features and characteristics. You will also be introduced to artificial neural networks and TensorFlow, and how it is used to create neural networks. In the final chapter, you will explore factors such as computational power, along with improvement methods and software enhancements for efficient predictive analytics. By the end of this book, you will be well-versed in using deep neural networks to solve common problems in big data analysis. What you will learn

- Use ensemble algorithms to obtain accurate predictions
- Apply dimensionality reduction techniques to combine features and build better models
- Choose the optimal hyperparameters using cross-validation
- Implement different techniques to solve current challenges in the predictive analytics domain
- Understand various elements of deep neural network (DNN) models
- Implement neural networks to solve both classification and regression problems

Who this book is for Mastering Predictive Analytics with scikit-learn and TensorFlow is for data analysts, software engineers, and machine learning developers who are interested in implementing advanced predictive analytics using Python. Business intelligence experts will also find this book indispensable as it will teach them how to progress from basic predictive models to building advanced models and producing more accurate predictions. Prior knowledge of Python and familiarity with predictive analytics concepts are assumed.

**Modeling Techniques in Predictive Analytics with Python and R** - Thomas W. Miller 2014

*Data Science for Marketing Analytics* - Tommy Blanchard 2019-03-30  
Explore new and more sophisticated tools that reduce your marketing analytics efforts and give you precise results

**Key Features**

- Study new techniques for marketing analytics
- Explore uses of machine learning to power your marketing analyses
- Work through each stage of data analytics

with the help of multiple examples and exercises

**Book Description**

*Data Science for Marketing Analytics* covers every stage of data analytics, from working with a raw dataset to segmenting a population and modeling different parts of the population based on the segments. The book starts by teaching you how to use Python libraries, such as pandas and Matplotlib, to read data from Python, manipulate it, and create plots, using both categorical and continuous variables. Then, you'll learn how to segment a population into groups and use different clustering techniques to evaluate customer segmentation. As you make your way through the chapters, you'll explore ways to evaluate and select the best segmentation approach, and go on to create a linear regression model on customer value data to predict lifetime value. In the concluding chapters, you'll gain an understanding of regression techniques and tools for evaluating regression models, and explore ways to predict customer choice using classification algorithms. Finally, you'll apply these techniques to create a churn model for modeling customer product choices. By the end of this book, you will be able to build your own marketing reporting and interactive dashboard solutions. What you will learn

- Analyze and visualize data in Python using pandas and Matplotlib
- Study clustering techniques, such as hierarchical and k-means clustering
- Create customer segments based on manipulated data
- Predict customer lifetime value using linear regression
- Use classification algorithms to understand customer choice
- Optimize classification algorithms to extract maximal information

Who this book is for *Data Science for Marketing Analytics* is designed for developers and marketing analysts looking to use new, more sophisticated tools in their marketing analytics efforts. It'll help if you have prior experience of coding in Python and knowledge of high school level mathematics. Some experience with databases, Excel, statistics, or Tableau is useful but not necessary.

**Python for Marketing Research and Analytics** - Jason S. Schwarz 2020-11-03

This book provides an introduction to quantitative marketing with Python. The book presents a hands-on approach to using Python for real

marketing questions, organized by key topic areas. Following the Python scientific computing movement toward reproducible research, the book presents all analyses in Colab notebooks, which integrate code, figures, tables, and annotation in a single file. The code notebooks for each chapter may be copied, adapted, and reused in one's own analyses. The book also introduces the usage of machine learning predictive models using the Python sklearn package in the context of marketing research. This book is designed for three groups of readers: experienced marketing researchers who wish to learn to program in Python, coming from tools and languages such as R, SAS, or SPSS; analysts or students who already program in Python and wish to learn about marketing applications; and undergraduate or graduate marketing students with little or no programming background. It presumes only an introductory level of familiarity with formal statistics and contains a minimum of mathematics.

#### **Applied Text Analysis with Python** - Benjamin Bengfort 2018-06-11

From news and speeches to informal chatter on social media, natural language is one of the richest and most underutilized sources of data. Not only does it come in a constant stream, always changing and adapting in context; it also contains information that is not conveyed by traditional data sources. The key to unlocking natural language is through the creative application of text analytics. This practical book presents a data scientist's approach to building language-aware products with applied machine learning. You'll learn robust, repeatable, and scalable techniques for text analysis with Python, including contextual and linguistic feature engineering, vectorization, classification, topic modeling, entity resolution, graph analysis, and visual steering. By the end of the book, you'll be equipped with practical methods to solve any number of complex real-world problems. Preprocess and vectorize text into high-dimensional feature representations Perform document classification and topic modeling Steer the model selection process with visual diagnostics Extract key phrases, named entities, and graph structures to reason about data in text Build a dialog framework to enable chatbots and language-driven interaction Use Spark to scale processing power and neural networks to scale model complexity

#### **Applied Predictive Modeling** - Max Kuhn 2013-05-17

Applied Predictive Modeling covers the overall predictive modeling process, beginning with the crucial steps of data preprocessing, data splitting and foundations of model tuning. The text then provides intuitive explanations of numerous common and modern regression and classification techniques, always with an emphasis on illustrating and solving real data problems. The text illustrates all parts of the modeling process through many hands-on, real-life examples, and every chapter contains extensive R code for each step of the process. This multi-purpose text can be used as an introduction to predictive models and the overall modeling process, a practitioner's reference handbook, or as a text for advanced undergraduate or graduate level predictive modeling courses. To that end, each chapter contains problem sets to help solidify the covered concepts and uses data available in the book's R package. This text is intended for a broad audience as both an introduction to predictive models as well as a guide to applying them. Non-mathematical readers will appreciate the intuitive explanations of the techniques while an emphasis on problem-solving with real data across a wide variety of applications will aid practitioners who wish to extend their expertise. Readers should have knowledge of basic statistical ideas, such as correlation and linear regression analysis. While the text is biased against complex equations, a mathematical background is needed for advanced topics.

#### *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.

### **Practical Machine Learning for Data Analysis Using Python -**

Abdulhamit Subasi 2020-06-05

Practical Machine Learning for Data Analysis Using Python is a problem solver's guide for creating real-world intelligent systems. It provides a comprehensive approach with concepts, practices, hands-on examples, and sample code. The book teaches readers the vital skills required to

understand and solve different problems with machine learning. It teaches machine learning techniques necessary to become a successful practitioner, through the presentation of real-world case studies in Python machine learning ecosystems. The book also focuses on building a foundation of machine learning knowledge to solve different real-world case studies across various fields, including biomedical signal analysis, healthcare, security, economics, and finance. Moreover, it covers a wide range of machine learning models, including regression, classification, and forecasting. The goal of the book is to help a broad range of readers, including IT professionals, analysts, developers, data scientists, engineers, and graduate students, to solve their own real-world problems. Offers a comprehensive overview of the application of machine learning tools in data analysis across a wide range of subject areas

Teaches readers how to apply machine learning techniques to biomedical signals, financial data, and healthcare data  
Explores important classification and regression algorithms as well as other machine learning techniques  
Explains how to use Python to handle data extraction, manipulation, and exploration techniques, as well as how to visualize data spread across multiple dimensions and extract useful features

### **Data Science Using Python and R -** Chantal D. Larose 2019-04-09

Learn data science by doing data science! Data Science Using Python and R will get you plugged into the world's two most widespread open-source platforms for data science: Python and R. Data science is hot. Bloomberg called data scientist "the hottest job in America." Python and R are the top two open-source data science tools in the world. In Data Science Using Python and R, you will learn step-by-step how to produce hands-on solutions to real-world business problems, using state-of-the-art techniques. Data Science Using Python and R is written for the general reader with no previous analytics or programming experience. An entire chapter is dedicated to learning the basics of Python and R. Then, each chapter presents step-by-step instructions and walkthroughs for solving data science problems using Python and R. Those with analytics experience will appreciate having a one-stop shop for learning how to do

data science using Python and R. Topics covered include data preparation, exploratory data analysis, preparing to model the data, decision trees, model evaluation, misclassification costs, naïve Bayes classification, neural networks, clustering, regression modeling, dimension reduction, and association rules mining. Further, exciting new topics such as random forests and general linear models are also included. The book emphasizes data-driven error costs to enhance

profitability, which avoids the common pitfalls that may cost a company millions of dollars. Data Science Using Python and R provides exercises at the end of every chapter, totaling over 500 exercises in the book. Readers will therefore have plenty of opportunity to test their newfound data science skills and expertise. In the Hands-on Analysis exercises, readers are challenged to solve interesting business problems using real-world data sets.