

R Machine Learning Essentials

Gain quick access to the machine learning concepts and practical applications using the R development environment.



R Machine Learning Essentials

Michele Usuelli

R Machine Learning Essentials:

Machine Learning Essentials Alboukadel Kassambara, 2018-03-10 Discovering knowledge from big multivariate data recorded every days requires specialized machine learning techniques This book presents an easy to use practical guide in R to compute the most popular machine learning methods for exploring real word data sets as well as for building predictive models The main parts of the book include A Unsupervised learning methods to explore and discover knowledge from a large multivariate data set using clustering and principal component methods You will learn hierarchical clustering k means principal component analysis and correspondence analysis methods B Regression analysis to predict a quantitative outcome value using linear regression and non linear regression strategies C Classification techniques to predict a qualitative outcome value using logistic regression discriminant analysis naive bayes classifier and support vector machines D Advanced machine learning methods to build robust regression and classification models using k nearest neighbors methods decision tree models ensemble methods bagging random forest and boosting E Model selection methods to select automatically the best combination of predictor variables for building an optimal predictive model These include best subsets selection methods stepwise regression and penalized regression ridge lasso and elastic net regression models We also present principal component based regression methods which are useful when the data contain multiple correlated predictor variables F Model validation and evaluation techniques for measuring the performance of a predictive model G Model diagnostics for detecting and fixing a potential problems in a predictive model The book presents the basic principles of these tasks and provide many examples in R This book offers solid guidance in data mining for students and researchers Key features Covers machine learning algorithm and implementation Key mathematical concepts are presented Short self contained chapters with practical examples R Machine Learning Essentials Michele Usuelli, 2014-11-28 If you want to learn how to develop effective machine learning solutions to your business problems in R this book is for you It would be helpful to have a bit of familiarity with basic object oriented programming concepts but no prior experience is required R Machine Learning **Essentials** Michele Usuelli, 2014-11-28 If you want to learn how to develop effective machine learning solutions to your business problems in R this book is for you It would be helpful to have a bit of familiarity with basic object oriented programming concepts but no prior experience is required **R Deep Learning Essentials** Mark Hodnett, Joshua F. Wiley, 2018-08-24 Implement neural network models in R 3 5 using TensorFlow Keras and MXNet Key Features Use R 3 5 for building deep learning models for computer vision and text Apply deep learning techniques in cloud for large scale processing Build train and optimize neural network models on a range of datasets Book Description Deep learning is a powerful subset of machine learning that is very successful in domains such as computer vision and natural language processing NLP This second edition of R Deep Learning Essentials will open the gates for you to enter the world of neural networks by building powerful deep learning models using the R ecosystem This book will introduce you to the basic

principles of deep learning and teach you to build a neural network model from scratch As you make your way through the book you will explore deep learning libraries such as Keras MXNet and TensorFlow and create interesting deep learning models for a variety of tasks and problems including structured data computer vision text data anomaly detection and recommendation systems You ll cover advanced topics such as generative adversarial networks GANs transfer learning and large scale deep learning in the cloud In the concluding chapters you will learn about the theoretical concepts of deep learning projects such as model optimization overfitting and data augmentation together with other advanced topics By the end of this book you will be fully prepared and able to implement deep learning concepts in your research work or projects What you will learn Build shallow neural network prediction models Prevent models from overfitting the data to improve generalizability Explore techniques for finding the best hyperparameters for deep learning models Create NLP models using Keras and TensorFlow in R Use deep learning for computer vision tasks Implement deep learning tasks such as NLP recommendation systems and autoencoders Who this book is for This second edition of R Deep Learning Essentials is for aspiring data scientists data analysts machine learning developers and deep learning enthusiasts who are well versed in machine learning concepts and are looking to explore the deep learning paradigm using R Fundamental understanding of the R language is necessary to get the most out of this book R Deep Learning Essentials Joshua F. Wiley, 2016-03-29 Build automatic classification and prediction models using unsupervised learningAbout This Book Harness the ability to build algorithms for unsupervised data using deep learning concepts with R Master the common problems faced such as overfitting of data anomalous datasets image recognition and performance tuning while building the models Build models relating to neural networks prediction and deep predictionWho This Book Is ForThis book caters to aspiring data scientists who are well versed with machine learning concepts with R and are looking to explore the deep learning paradigm using the packages available in R You should have a fundamental understanding of the R language and be comfortable with statistical algorithms and machine learning techniques but you do not need to be well versed with deep learning concepts What You Will Learn Set up the R package H2O to train deep learning models Understand the core concepts behind deep learning models Use Autoencoders to identify anomalous data or outliers Predict or classify data automatically using deep neural networks Build generalizable models using regularization to avoid overfitting the training dataIn DetailDeep learning is a branch of machine learning based on a set of algorithms that attempt to model high level abstractions in data by using model architectures With the superb memory management and the full integration with multi node big data platforms the H2O engine has become more and more popular among data scientists in the field of deep learning This book will introduce you to the deep learning package H2O with R and help you understand the concepts of deep learning We will start by setting up important deep learning packages available in R and then move towards building models related to neural networks prediction and deep prediction all of this with the help of real life examples After installing the H2O package you will learn about prediction

algorithms Moving ahead concepts such as overfitting data anomalous data and deep prediction models are explained Finally the book will cover concepts relating to tuning and optimizing models Style and approachThis book takes a practical approach to showing you the concepts of deep learning with the R programming language We will start with setting up important deep learning packages available in R and then move towards building models related to neural network prediction and deep prediction and all of this with the help of real life examples *Mastering Machine Learning with R Cory* Lesmeister, 2015-10-28 Master machine learning techniques with R to deliver insights for complex projects About This Book Get to grips with the application of Machine Learning methods using an extensive set of R packages Understand the benefits and potential pitfalls of using machine learning methods Implement the numerous powerful features offered by R with this comprehensive guide to building an independent R based ML system Who This Book Is For If you want to learn how to use R s machine learning capabilities to solve complex business problems then this book is for you Some experience with R and a working knowledge of basic statistical or machine learning will prove helpful What You Will Learn Gain deep insights to learn the applications of machine learning tools to the industry Manipulate data in R efficiently to prepare it for analysis Master the skill of recognizing techniques for effective visualization of data Understand why and how to create test and training data sets for analysis Familiarize yourself with fundamental learning methods such as linear and logistic regression Comprehend advanced learning methods such as support vector machines Realize why and how to apply unsupervised learning methods In Detail Machine learning is a field of Artificial Intelligence to build systems that learn from data Given the growing prominence of R a cross platform zero cost statistical programming environment there has never been a better time to start applying machine learning to your data The book starts with introduction to Cross Industry Standard Process for Data Mining It takes you through Multivariate Regression in detail Moving on you will also address Classification and Regression trees You will learn a couple of Unsupervised techniques Finally the book will walk you through text analysis and time series The book will deliver practical and real world solutions to problems and variety of tasks such as complex recommendation systems By the end of this book you will gain expertise in performing R machine learning and will be able to build complex ML projects using R and its packages Style and approach This is a book explains complicated concepts with easy to follow theory and real world practical applications It demonstrates the power of R and machine learning extensively while Machine Learning Essentials and Applications Mrs. N. Jayasri, Dr. Saiyed Faiayaz highlighting the constraints Waris, Mr. Drumil Joshi, Mrs. P. Revathy, 2024-07-27 Machine Learning Essentials and Applications a comprehensive of machine learning s core principles methodologies and real world applications. This book is designed for both beginners and professionals covering essential topics like supervised and unsupervised learning neural networks and deep learning With clear explanations and practical examples it connects theory to practice showcasing machine learning s impact across industries such as healthcare finance and technology Ideal for readers seeking foundational knowledge and insights into the

transformative potential of machine learning in various fields Learning Shiny Hernan G. Resnizky, 2015-10-16 Make the most of R s dynamic capabilities and implement web applications with Shiny About This Book Present interactive data visualizations in R within the Shiny framework Construct web dashboards in a simple intuitive but fully flexible environment Apply your skills to create a real world web application with this step by step guide Who This Book Is For If you are a data scientist who needs a platform to show your results to a broader audience in an attractive and visual way or a web developer with no prior experience in R or Shiny this is the book for you What You Will Learn Comprehend many useful functions such as lapply and apply to process data in R Write and structure different files to create a basic dashboard Develop graphics in R using popular graphical libraries such as ggplot2 and GoogleVis Mount a dashboard on a Linux Server Integrate Shiny with non R native visualization such as D3 is Design and build a web application In Detail R is nowadays one of the most used tools in data science However along with Shiny it is also gaining territory in the web application world due to its simplicity and flexibility Shiny is a framework that enables the creation of interactive visualizations written entirely in R and can be displayed in almost any ordinary web browser It is a package from RStudio which is an IDE for R From the fundamentals of R to the administration of multi concurrent fully customized web applications this book explains how to achieve your desired web application in an easy and gradual way You will start by learning about the fundamentals of R and will move on to looking at simple and practical examples These examples will enable you to grasp many useful tools that will assist you in solving the usual problems that can be faced when developing data visualizations You will then walk through the integration of Shiny with R in general and view the different visualization possibilities out there Finally you will put your skills to the test and create your first web application Style and approach This is a comprehensive step by step guide that will allow you to learn and make full use of R and Shiny's capabilities in a gradual way together with clear applied examples Learning Essentials You Always Wanted to Know Dhairya Parikh, Vibrant Publishers, 2025-07-04 Covers key algorithms and techniques Ideal for students and professionals Hands on implementation included Master the fundamentals of ML and take the first step towards a career in AI In today s rapidly evolving world machine learning ML is no longer just for researchers or data scientists From personalized recommendations on streaming platforms to fraud detection in banking ML powers many aspects of our daily lives As industries increasingly adopt AI driven solutions learning machine learning has become a valuable skill Yet many find the subject overwhelming often intimidated by its mathematical complexity That s where Machine Learning Essentials You Always Wanted to Know Machine Learning Essentials comes in This beginner friendly guide offers a structured step by step approach to understanding machine learning concepts without unnecessary jargon Whether you are a student a professional looking to transition into AI or simply curious about how machines learn this book provides a clear and practical roadmap to mastering ML Authored by Dhairya Parikh an experienced data engineer who returned to academia to refine his expertise this book bridges the gap between theory and real world application It simplifies

the core concepts of ML breaking them down into digestible explanations paired with hands on coding exercises to help you apply what you learn What You ll Learn The fundamentals of machine learning and how it powers modern technology The three kev types of ML Supervised Unsupervised and Reinforcement Learning How to combine algorithms data and models to develop AI driven solutions Practical coding techniques to build and implement machine learning models Part of Vibrant Publishers Self Learning Management Series this book serves as a valuable guide for building machine learning skills enhancing your expertise and advancing your career in AI and data science **Advanced Machine Learning with R** Cory Lesmeister, Dr. Sunil Kumar Chinnamgari, 2019-05-20 Master machine learning techniques with real world projects that interface TensorFlow with R H2O MXNet and other languages Key FeaturesGain expertise in machine learning deep learning and other techniquesBuild intelligent end to end projects for finance social media and a variety of domainsImplement multi class classification regression and clusteringBook Description R is one of the most popular languages when it comes to exploring the mathematical side of machine learning and easily performing computational statistics This Learning Path shows you how to leverage the R ecosystem to build efficient machine learning applications that carry out intelligent tasks within your organization You ll tackle realistic projects such as building powerful machine learning models with ensembles to predict employee attrition You ll explore different clustering techniques to segment customers using wholesale data and use TensorFlow and Keras R for performing advanced computations You ll also be introduced to reinforcement learning along with its various use cases and models Additionally it shows you how some of these black box models can be diagnosed and understood By the end of this Learning Path you ll be equipped with the skills you need to deploy machine learning techniques in your own projects This Learning Path includes content from the following Packt products R Machine Learning Projects by Dr Sunil Kumar ChinnamgariMastering Machine Learning with R Third Edition by Cory LesmeisterWhat you will learnDevelop a joke recommendation engine to recommend jokes that match users tastesBuild autoencoders for credit card fraud detectionWork with image recognition and convolutional neural networksMake predictions for casino slot machine using reinforcement learningImplement NLP techniques for sentiment analysis and customer segmentationProduce simple and effective data visualizations for improved insightsUse NLP to extract insights for textImplement tree based classifiers including random forest and boosted treeWho this book is for If you are a data analyst data scientist or machine learning developer this is an ideal Learning Path for you Each project will help you test your skills in implementing machine learning algorithms and techniques A basic understanding of machine learning and working knowledge of R programming is necessary to get the most out of this Learning Path Biological Pattern Discovery With R: Machine Learning Approaches Zheng Rong Yang, 2021-09-17 This book provides the research directions for new or junior researchers who are going to use machine learning approaches for biological pattern discovery The book was written based on the research experience of the author's several research projects in collaboration with biologists worldwide The chapters are organised to address

individual biological pattern discovery problems For each subject the research methodologies and the machine learning algorithms which can be employed are introduced and compared Importantly each chapter was written with the aim to help the readers to transfer their knowledge in theory to practical implementation smoothly Therefore the R programming environment was used for each subject in the chapters The author hopes that this book can inspire new or junior researchers interest in biological pattern discovery using machine learning algorithms Essentials of Excel VBA, Python, and R John Lee, Jow-Ran Chang, Lie-Jane Kao, Cheng-Few Lee, 2023-03-23 This advanced textbook for business statistics teaches statistical analyses and research methods utilizing business case studies and financial data with the applications of Excel VBA Python and R Each chapter engages the reader with sample data drawn from individual stocks stock indices options and futures Now in its second edition it has been expanded into two volumes each of which is devoted to specific parts of the business analytics curriculum To reflect the current age of data science and machine learning the used applications have been updated from Minitab and SAS to Python and R so that readers will be better prepared for the current industry This second volume is designed for advanced courses in financial derivatives risk management and machine learning and financial management In this volume we extensively use Excel Python and R to analyze the above mentioned topics It is also a comprehensive reference for active statistical finance scholars and business analysts who are looking to upgrade their toolkits Readers can look to the first volume for dedicated content on financial statistics and portfolio analysis Science Essentials with R Abhishek Das, 2024-12-30 DESCRIPTION This book teaches you to draw insights from your data In today s data driven business landscape making informed decisions requires effective data analysis This book guides you through the steps to import structure and visualize your data in R and apply statistical and ML algorithms to drive better insights This book offers a thorough introduction to data science starting with R programming basics and advancing to ML and data visualization Learn to clean explore and transform data using tools like dplyr Key statistical concepts like probability hypothesis testing and modeling are covered providing a foundation for data driven decisions Discover supervised and unsupervised ML techniques feature engineering and model evaluation The book also provides career guidance in data science including skill building tips and job search strategies equipping you to excel in this growing field By the end of this book you will be able to confidently use R to prepare data for analysis and apply ML algorithms to make predictions and drive business decisions KEY FEATURES Master R for effective data analysis and ML Analyze data identify patterns and drive informed decision making Learn by doing hands on R codes and applying ML techniques WHAT YOU WILL LEARN Use R to clean analyze and visualize data effectively Apply statistical techniques to find patterns and trends in data Understand and implement key ML algorithms step by step Data visualization techniques using ggplot2 to create informative visualizations Strong foundation in statistical concepts including probability theory hypothesis testing and statistical modeling WHO THIS BOOK IS FOR This book is ideal for individuals with a basic understanding of programming and statistics who aspire to enter

the field of data science Professionals such as data analysts software engineers and researchers will find this book particularly valuable as it provides a practical approach to leveraging data for informed decision making TABLE OF CONTENTS 1 The Data Science Landscape 2 R Basics 3 Exploring Data 4 Wrangling Data 5 Working with Dates 6 Manipulating Strings 7 Visualizing Dat 8 Feature Engineering 9 Statistics and Probability 10 Introducing ML 11 Training Machine Learning Models 12 Building a Career in Data Science Machine Learning Essentials Barrett Williams, ChatGPT, 2024-12-01 Unlock the potential of data and step into the future with Machine Learning Essentials the ultimate guide for mastering predictive analytics Whether you re a newcomer or looking to deepen your understanding this comprehensive eBook is designed to equip you with the tools and knowledge you need to excel in the dynamic field of machine learning Begin your journey by exploring the foundational principles of machine learning and its transformative impact on predictive analytics Learn how to expertly prepare and engineer your data selecting and extracting the features that matter most Dive into handling imbalanced data with precision ensuring your models are accurate and robust Discover the power of classification algorithms with insights into decision trees random forests support vector machines and logistic regression Transition smoothly into regression techniques harnessing the potential of linear polynomial and regularization methods Explore the realm of unsupervised learning to unveil predictive insights using clustering methods dimensionality reduction techniques and anomaly detection Evaluate model performance like a pro with cross validation strategies confusion matrices and ROC AUC metrics Venture into neural networks unlocking the basics of their architecture activation functions and training methodologies Delve into advanced deep learning topics with convolutional recurrent and generative adversarial networks Optimize your models through hyperparameter tuning and feature importance analysis selecting the most effective techniques for your goals Gain practical business insights by implementing machine learning in marketing analytics risk assessment and fraud detection Familiarize yourself with essential tools and libraries like Python Scikit Learn TensorFlow and PyTorch Learn from real world case studies in retail healthcare and finance and tackle ethical considerations in algorithmic bias and data security Prepare for the future with insights into automated machine learning IoT and evolving AI technologies Take practical steps to launch your machine learning journey setting up your environment and connecting with a vibrant community of practitioners Machine Learning Essentials is your all in one resource for gaining actionable expertise and driving innovation in today s data driven world Start your learning adventure today and transform your career with this indispensable guide Business Analytics Using R - A Practical Approach Umesh R Hodeghatta, Umesha Nayak, 2016-12-27 Learn the fundamental aspects of the business statistics data mining and machine learning techniques required to understand the huge amount of data generated by your organization This book explains practical business analytics through examples covers the steps involved in using it correctly and shows you the context in which a particular technique does not make sense Further Practical Business Analytics using R helps you understand specific issues faced by

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

ARTIFICIAL INTELLIGENCE AND INDUSTRY 5.0, 2025-03-01 Artificial Intelligence and Industry 5.0 is a textbook that bridges theoretical foundations of AI with its applications in the emerging areas of Industry 5 0 The book is written to provide a foundation for machine learning and deep learning with their applications in natural sciences by providing worked out examples and exercises The book takes a balanced approach between the theoretical basis for machine learning and its applications It covers topics including artificial neural networks machine learning supervised and unsupervised learning deep learning convolution neural networks and recurrent neural networks Besides the book also includes topics such as pattern recognition natural language processing and metaheuristic algorithms which will give readers to understand some of the vital areas where AI plays a significant role The well explained algorithms and pseudocodes for each topic help students to apply them in their relevant field The book besides discussing the topics prescribed in the syllabus is enriched with the research experience of the authors from different fields including Theoretical or Computational Chemistry Bioinformatics and Computer Sciences and various training programs conducted for the students research community This book is a result of 6 years of group discussions that took place with the groups of eminent professors and researchers in the field For brief lectures PPTs the readers can visit PHI Learning Centre or https github com gnsastry ACDS Lectures KEY FEATURES Includes topics prescribed in the syllabus as well as the latest research in the field The book provides a mathematical foundation and learning techniques in Artificial Intelligence Machine Learning and Deep Learning Each chapter comprises a set of worked out examples and exercises which are focused on the key concepts The book is organized with fundamental concepts and applications in natural sciences healthcare drug discovery environmental sustainability and more TARGET AUDIENCE B Tech Computer Science and Engineering B Tech AI and ML B Tech all branches for elective course

Building a Recommendation System with R Suresh K. Gorakala, Michele Usuelli, 2015-09-29 Learn the art of building robust and powerful recommendation engines using R About This Book Learn to exploit various data mining techniques

Understand some of the most popular recommendation techniques This is a step by step guide full of real world examples to help you build and optimize recommendation engines Who This Book Is For If you are a competent developer with some knowledge of machine learning and R and want to further enhance your skills to build recommendation systems then this book is for you What You Will Learn Get to grips with the most important branches of recommendation Understand various data processing and data mining techniques Evaluate and optimize the recommendation algorithms Prepare and structure the data before building models Discover different recommender systems along with their implementation in R Explore various evaluation techniques used in recommender systems Get to know about recommenderlab an R package and understand how to optimize it to build efficient recommendation systems In Detail A recommendation system performs extensive data analysis in order to generate suggestions to its users about what might interest them R has recently become one of the most popular programming languages for the data analysis Its structure allows you to interactively explore the data and its modules contain the most cutting edge techniques thanks to its wide international community This distinctive feature of the R language makes it a preferred choice for developers who are looking to build recommendation systems The book will help you understand how to build recommender systems using R It starts off by explaining the basics of data mining and machine learning Next you will be familiarized with how to build and optimize recommender models using R Following that you will be given an overview of the most popular recommendation techniques Finally you will learn to implement all the concepts you have learned throughout the book to build a recommender system Style and approach This is a step by step guide that will take you through a series of core tasks Every task is explained in detail with the help of practical examples

R Deep Learning Projects Yuxi (Hayden) Liu, Pablo Maldonado, 2018-02-22 5 real world projects to help you master deep learning concepts Key Features Master the different deep learning paradigms and build real world projects related to text generation sentiment analysis fraud detection and more Get to grips with R s impressive range of Deep Learning libraries and frameworks such as deepnet MXNetR Tensorflow H2O Keras and text2vec Practical projects that show you how to implement different neural networks with helpful tips tricks and best practices Book Description R is a popular programming language used by statisticians and mathematicians for statistical analysis and is popularly used for deep learning Deep Learning as we all know is one of the trending topics today and is finding practical applications in a lot of domains This book demonstrates end to end implementations of five real world projects on popular topics in deep learning such as handwritten digit recognition traffic light detection fraud detection text generation and sentiment analysis You Il learn how to train effective neural networks in R including convolutional neural networks recurrent neural networks and LSTMs and apply them in practical scenarios The book also highlights how neural networks can be trained using GPU capabilities You will use popular R libraries and packages such as MXNetR H2O deepnet and more to implement the projects By the end of this book you will have a better understanding of deep learning concepts and techniques and how to use them in a practical setting

What you will learn Instrument Deep Learning models with packages such as deepnet MXNetR Tensorflow H2O Keras and text2vec Apply neural networks to perform handwritten digit recognition using MXNet Get the knack of CNN models Neural Network API Keras and TensorFlow for traffic sign classification Implement credit card fraud detection with Autoencoders Master reconstructing images using variational autoencoders Wade through sentiment analysis from movie reviews Run from past to future and vice versa with bidirectional Long Short Term Memory LSTM networks Understand the applications of Autoencoder Neural Networks in clustering and dimensionality reduction Who this book is for Machine learning professionals and data scientists looking to master deep learning by implementing practical projects in R will find this book a useful resource A knowledge of R programming and the basic concepts of deep learning is required to get the best out of this book

Remote Sensing and Digital Image Processing with R Marcelo de Carvalho Alves, Luciana Sanches, 2023-06-30 This new textbook on remote sensing and digital image processing of natural resources includes numerous practical problem solving exercises and applications of sensors and satellite systems using remote sensing data collection resources and emphasizes the free and open source platform R It explains basic concepts of remote sensing and multidisciplinary applications using R language and R packages by engaging students in learning theory through hands on real life projects All chapters are structured with learning objectives computation questions solved exercises resources and research suggestions Features Explains the theory of passive and active remote sensing and its applications in water soil vegetation and atmosphere Covers data analysis in the free and open source R platform which makes remote sensing accessible to anyone with a computer Includes case studies from different environments with free software algorithms and an R toolset for active learning and a learn by doing approach Provides hands on exercises at the end of each chapter and encourages readers to understand the potential and the limitations of the environments remote sensing targets and process Explores current trends and developments in remote sensing in homework assignments with data to further explore the use of free multispectral remote sensing data including very high spatial resolution data sources for target recognition with image processing techniques While the focus of the book is on environmental and agriculture engineering it can be applied widely to a variety of subjects such as physical natural and social sciences Students in upper level undergraduate or graduate programs taking courses in remote sensing geoprocessing civil and environmental engineering geosciences environmental sciences electrical engineering biology and hydrology will also benefit from the learning objectives in the book Professionals who use remote sensing and digital processing will also find this text enlightening **Python Data Analysis Cookbook** Ivan Idris, 2016-07-22 Over 140 practical recipes to help you make sense of your data with ease and build production ready data apps About This Book Analyze Big Data sets create attractive visualizations and manipulate and process various data types Packed with rich recipes to help you learn and explore amazing algorithms for statistics and machine learning Authored by Ivan Idris expert in python programming and proud author of eight highly reviewed books Who This Book Is For This book

teaches Python data analysis at an intermediate level with the goal of transforming you from journeyman to master Basic Python and data analysis skills and affinity are assumed What You Will Learn Set up reproducible data analysis Clean and transform data Apply advanced statistical analysis Create attractive data visualizations Web scrape and work with databases Hadoop and Spark Analyze images and time series data Mine text and analyze social networks Use machine learning and evaluate the results Take advantage of parallelism and concurrency In Detail Data analysis is a rapidly evolving field and Python is a multi paradigm programming language suitable for object oriented application development and functional design patterns As Python offers a range of tools and libraries for all purposes it has slowly evolved as the primary language for data science including topics on data analysis visualization and machine learning Python Data Analysis Cookbook focuses on reproducibility and creating production ready systems You will start with recipes that set the foundation for data analysis with libraries such as matplotlib NumPy and pandas You will learn to create visualizations by choosing color maps and palettes then dive into statistical data analysis using distribution algorithms and correlations You ll then help you find your way around different data and numerical problems get to grips with Spark and HDFS and then set up migration scripts for web mining In this book you will dive deeper into recipes on spectral analysis smoothing and bootstrapping methods Moving on you will learn to rank stocks and check market efficiency then work with metrics and clusters You will achieve parallelism to improve system performance by using multiple threads and speeding up your code By the end of the book you will be capable of handling various data analysis techniques in Python and devising solutions for problem scenarios Style and Approach The book is written in cookbook style striving for high realism in data analysis Through the recipe based format you can read each recipe separately as required and immediately apply the knowledge gained

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R Machine Learning Essentials Introduction

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