Unsupervised Deep Learning In Python Master Data Science And Machine Learning With Modern Neural Networks Written In Python And Theano Machine Learning In Python

Yeah, reviewing a books **unsupervised deep learning in python master data science and machine learning with modern neural networks written in python and theano machine learning in python** could build up your close links listings. This is just one of the solutions for you to be successful. As understood, completion does not suggest that you have fabulous points.

Comprehending as without difficulty as contract even more than supplementary will manage to pay for each success. next-door to, the publication as with ease as acuteness of this unsupervised deep learning in python master data science and machine learning with modern neural networks written in python and theano machine learning in python can be taken as competently as picked to act.

Practical Machine Learning with Python - Dipanjan Sarkar 2017-12-20
Master the essential skills needed to recognize and solve complex problems with machine learning and deep learning. Using real-world examples that leverage the popular Python machine learning ecosystem, this book is your perfect companion for learning the art and science of machine learning to become a successful practitioner. The concepts, techniques, tools, frameworks, and methodologies used in this book will teach you how to think, design, build, and execute machine learning systems and projects successfully. Practical Machine Learning with Python follows a structured and comprehensive three-tiered approach packed with hands-on examples and code. Part 1 focuses on understanding machine learning concepts and tools. This includes machine learning basics with a broad overview of algorithms, techniques, concepts and applications, followed by a tour of the entire Python machine learning ecosystem. Brief guides for useful machine learning tools, libraries and frameworks are also covered. Part 2 details standard machine learning pipelines, with an emphasis on data processing analysis, feature engineering, and modeling. You will learn how to process, wrangle, summarize and visualize data in its various forms. Feature engineering and selection methodologies will be covered in detail with real-world datasets followed by model building, tuning, interpretation and deployment. Part 3 explores multiple real-world case studies spanning diverse domains and industries like retail, transportation, movies, music, marketing, computer vision and finance. For each case study, you will learn the application of various machine learning techniques and methods. The hands-on examples will help you become familiar with state-of-the-art machine learning tools and techniques and understand what algorithms are best suited for any problem. Practical Machine Learning with Python will empower you to start solving your own problems with machine learning today! What You'll Learn Execute end-to-end machine learning projects and systems Implement hands-on examples with industry standard, open source, robust machine learning tools and frameworks Review case studies depicting applications of machine learning and deep learning on diverse domains and industries Apply a wide range of machine learning models including regression, classification, and clustering. Understand and apply the latest models and methodologies from deep learning including CNNs, RNNs, LSTMs and transfer learning. Who This Book Is For IT professionals, analysts, developers, data scientists, engineers, graduate students

Mastering Machine Learning with Python in Six Steps - Manohar Swamynathan 2019-10-01
Explore fundamental to advanced Python 3 topics in six steps, all designed to make you a worthy practitioner. This updated version’s approach is based on the “six degrees of separation” theory, which states that everyone and everything is a maximum of six steps away and presents each topic in two parts: theoretical concepts and practical implementation using suitable Python 3 packages. You’ll start with the fundamentals of Python 3 programming language, machine learning history, evolution, and the system development frameworks. Key data mining/analysis concepts, such as exploratory analysis, feature dimension reduction, regressions, time series forecasting and their efficient implementation in Scikit-learn are covered as well. You’ll also learn commonly used model diagnostic and tuning techniques. These include optimal probability cutoff point for class creation, variance, bias, bagging, boosting, ensemble voting, grid search, random search, Bayesian optimization, and the noise reduction technique for IoT data. Finally, you’ll review advanced text mining techniques, recommender systems, neural networks, deep learning, reinforcement learning techniques and their implementation. All the code presented in the book will be available in the form of iPython notebooks to enable you to try out these examples and extend them to your advantage. What You'll Learn Understand machine learning development and frameworksAssess model diagnosis and tuning in machine learningExamine text mining, natuarl language processing (NLP), and recommender systemsReview reinforcement learning and CNN Who This Book Is For Python developers, data engineers, and machine learning engineers looking to expand their knowledge or career into machine learning area.

Applied Deep Learning with Keras - Ritesh Bhagwat 2019-04-22
Take your neural networks to a whole new level with the simplicity and modularity of Keras, the most commonly used high-level neural networks API. Key Features Solve complex machine learning problems with precision Evaluate, tweak, and improve your deep learning models and solutions Use different types of neural networks to solve real-world problems Book Description Though designing neural networks is a sought-after skill, it is not easy to master. With Keras, you can apply complex machine learning algorithms with minimum code. Applied Deep Learning with Keras starts by taking you through the basics of machine learning and Python all the way to gaining an in-depth understanding of applying Keras to develop efficient deep learning solutions. To help you grasp the difference between machine and deep learning, the book guides you on how to build a logistic regression model, first with scikit-learn and then with Keras. You will delve into Keras and its many models by creating prediction models for various real-world scenarios, such as disease prediction and customer churning. You'll gain knowledge on how to evaluate, optimize, and improve your models to achieve maximum information. Next, you'll learn to evaluate your model by cross-validating it using Keras Wrapper and scikit-learn. Following this, you'll proceed to understand how to apply L1, L2, and dropout regularization techniques to improve the accuracy of your model. To help maintain accuracy, you'll get to grips with applying techniques including null accuracy, precision, and AUC-ROC score techniques for fine tuning your model. By the end of this book, you will have the skills you need to use Keras when building high-level deep neural networks. What you will learn Understand the difference between single-layer and multi-layer neural network models Use Keras to build simple logistic regression models, deep neural networks, recurrent neural networks, and convolutional neural networks Apply L1, L2, and dropout regularization to improve the accuracy of your model Implement cross-validate using Keras wrappers with scikit-learn Understand the limitations of model accuracy Who this book is for If you have basic knowledge of data science and machine learning and want to develop your skills and learn about artificial neural networks and deep learning, you will find this book useful. Prior experience of Python programming and experience with statistics and logistic regression will help you get the most out of this book. Although not necessary, some familiarity with the scikit-learn library will be an added bonus.

Artificial Intelligence with Python - Prateek Joshi 2017-01-27
Build real-world Artificial Intelligence applications with Python to intelligently interact with the world around you About This Book Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play

around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

Machine Learning - Kamal Kant Hiran 2021-09-16

Concepts of Machine Learning with Practical Approaches. KEY FEATURES ● Includes real-scenario examples to explain the working of Machine Learning algorithms. ● Includes graphical and statistical representation to simplify modeling Machine Learning and Neural Networks. ● Full of Python codes, numerous exercises, and model question papers for data science students. DESCRIPTION The book offers the readers the fundamental concepts of Machine Learning techniques in a user-friendly language. The book aims to give in-depth knowledge of the different Machine Learning (ML) algorithms and the practical implementation of the various ML approaches. This book covers different Supervised Machine Learning algorithms such as Linear Regression Model, Naïve Bayes classifier Decision Tree, K-nearest neighbor, Logistic Regression, Support Vector Machine, Random forest algorithms, Unsupervised Machine Learning algorithms such as k-means clustering, Hierarchical Clustering, Probabilistic clustering, Association rule mining, Apriori Algorithm, f-p growth algorithm, Gaussian mixture model and Reinforcement Learning algorithm such as Markov Decision Process (MDP), Bellman equations, policy evaluation using Monte Carlo, Policy iteration and Value iteration, Q-Learning, State-Action-Reward-State-Action (SARSA). It also includes various feature extraction and feature selection techniques, the Recommender System, and a brief overview of Deep Learning. By the end of this book, the reader can understand Machine Learning concepts and easily implement various ML algorithms to real-world problems. WHAT YOU WILL LEARN ● Perform feature extraction and feature selection techniques. ● Learn to select the best Machine Learning algorithm for a given problem. ● Get a stronghold in using popular Python libraries like Scikit-learn, pandas, and matplotlib. ● Practice how to implement different types of Machine Learning techniques. ● Learn about Artificial Neural Network along with the Back Propagation Algorithm. ● Make use of various recommended systems with powerful algorithms. WHO THIS BOOK IS FOR This book is designed for data science and analytics students, academicians, and researchers who want to explore the concepts of machine learning and practice the understanding of real cases. Knowing basic statistical and programming concepts would be good, although not mandatory. TABLE OF CONTENTS 1. Introduction 2. Supervised Learning Algorithms 3. Unsupervised Learning 4. Introduction to the Statistical Learning Theory 5. Semi-Supervised Learning and Reinforcement Learning 6. Recommended Systems

Introduction to Machine Learning with Python - David James 2018-08-25

***** BUY NOW (will soon return to 24.78 $)******Free eBook for customers who purchase the print book from Amazon****** Are you thinking of learning more about Machine Learning using Python? (For Beginners) This book would seek to explain common terms and algorithms in an intuitive way. The author used a progressive approach whereby we start out slowly and improve on the complexity of our solutions. From AI Sciences Publisher Our books may be the best one for beginners; it's a step-by-step guide for any person who wants to start learning Artificial Intelligence and Data Science from scratch. It will help you in preparing a solid foundation and learn any other high-level courses. To get the most out of the concepts that would be covered, readers are advised to adopt a hands on approach which would lead to better mental representations. Step By Step Guide and Visual Illustrations and Examples This book and the accompanying examples, you would be well suited to tackle problems which pique your interests using machine learning. Instead of tough math formulas, this book contains several graphs and images which detail all important Machine Learning concepts and their applications. Target Users The book designed for a variety of target audiences. The most suitable users would include: Anyone who is intrigued by how algorithms arrive at predictions but has no previous knowledge of the field. Software developers and engineers with a strong programming background but seeking to break into the field of machine learning. Seasoned professionals in the field of artificial intelligence and machine learning who desire a bird's eye view of current techniques and approaches. What's Inside This Book? Supervised Learning Algorithms Unsupervised Learning Algorithms Semi-supervised Learning Algorithms Reinforcement Learning Algorithms Overfitting and underfitting correctness The Bias-Variance Trade-off Feature Extraction and Selection A Regression Example: Predicting Boston Housing Prices Import Libraries: How to forecast and Predict Popular Classification Algorithms Introduction to K Nearest Neighbors Introduction to Support Vector Machine Example of Clustering Running K-means with Scikit-Learn Introduction to Deep Learning using TensorFlow Deep Learning Compared to Other Machine Learning Approaches Applications of Deep Learning How to run the Neural Network using TensorFlow Cases of Study with Real Data Sources & References Frequently Asked Questions Q: Is this book for me and do I need programming experience? A: If you want to smash Machine Learning from scratch, this book is for you. If you already wrote a few lines of code and recognize basic programming statements, you'll be OK. Q: Does this book include everything I need to become a Machine Learning expert? A: Unfortunately, no. This book is designed for readers taking their first steps in Machine Learning and further learning will be required beyond this book to master all aspects of Machine Learning. Q: Can I have a refund if this book is not fitted for me? A: Yes, Amazon refund you if you aren't satisfied, for more information about the amazon refund service please go to the amazon help platform. We will also be happy to help you if you send us an email at contact@aisciences.net. If you need to see the quality of our job, AI Sciences Company offering you a free eBook in Machine Learning with Python written by the data scientist Alain Kaufmann at http: //aisciences.net/free-books/

Python Machine Learning For Beginners 2021 - Steven Williams 2020-12-05

If you want to learn how to design and master different Machine Learning algorithms quickly and easily, then keep reading. We live in a world of data deluge where gigabytes of data are generated daily. It is possible that this data might not be very useful for our daily applications. Major setbacks in the use of such data may be due to the presence of loopholes in data links previously generated or the data might be too vast for the limited human mind. Machine learning in this book presents some of the solutions to the problems above. Being an introductory guide, expect to learn the various basics involved in Machine Learning and Python. This book provides an insight into the new world of big data, then behooves you to learn more about Machine Learning. With a detailed and concise overview of the fundamentals, along with the challenges and limitations currently being tackled by the pros, inside this comprehensive guide you will Learn the Fundamentals of Machine Learning which Are Being Developed and Advanced with Python What is Machine Learning and how it is applied in real-world situations Algorithms, in a Language that Requires No Prior Background in Python Discover best practices for evaluating and tuning models Discover the Details of the Supervised, Unsupervised, and Reinforcement Algorithms, which Serve as the Skeleton of Hundreds of Machine Learning Algorithms Being Developed Every Day Become Familiar with Data Science Technology, an Umbrella Term Used for the Cutting-Edge Technologies of Today Understand the Entire Process of Creating Neural Network Models on TensorFlow, Using Open Source Data Sets and real

Python Code Uncover the Secrets of the Most Critical Aspect of Developing a Machine Learning Model - Data Pre-Processing and Training/Testing Subsets Artificial Neural Networks And Much More! So what are you waiting for? Even if some concepts of Machine Learning algorithms can appear complex to most computer programming beginners, this book takes the time to explain them in a simple and concise way. Would You Like To Know More? Scroll up and click on the BUY NOW button to get your copy now!

Python Machine Learning - Andrew Park 2020-11-13

If you want to learn how to design and master different Machine Learning algorithms quickly and easily, then keep reading. Today, we live in the era of Artificial Intelligence. Self-driving cars, customized product recommendations, real-time pricing, speech and facial recognition are just a few examples proving this truth. Also, think about medical diagnostics or automation of mundane and repetitive labor tasks; all these highlight the fact that we live in interesting times. From research topics to projects and applications in different stages of production, there is a lot going on in the world of Machine Learning. Machines and automation represent a huge part of our daily life. They are becoming part of our experience and existence. This is Machine Learning. Artificial Intelligence is currently one of the most thriving fields any programmer would wish to delve into, and for a good reason: this is the future! Simply put, Machine Learning is about teaching machines to think and make decisions as we would. The difference between the way machines learn and the way we do is that while for the most part we learn from experiences, machines learn from data. Starting from scratch, Python Machine Learning explains how this happens, how machines build their experience and compounding knowledge. Data forms the core of Machine Learning because within data lie truths whose depths exceed our imagination. The computations machines can perform on data are incredible, beyond anything a human brain could do. Once we introduce data to a machine learning model, we must create an environment where we update the data stream frequently. This builds the machine's learning ability. The more data Machine Learning models are exposed to, the easier it is for these models to expand their potential. Some of the topics that we will discuss inside include: What is Machine Learning and how it is applied in real-world situations Understanding the differences between Machine Learning, Deep Learning, and Artificial Intelligence Supervised learning, unsupervised learning, and semi-supervised learning The place of Regression techniques in Machine Learning, including Linear Regression in Python Machine learning training models How to use Lists and Modules in Python The 12 essential libraries for Machine Learning in Python What is the Tensorflow library Artificial Neural Networks And Much More! While most books only focus on widespread details without going deeper into the different models and techniques, Python Machine Learning explains how to master the concepts of Machine Learning technology and helps you to understand how researchers are breaking the boundaries of Data Science to mimic human intelligence in machines using various Machine Learning algorithms. Even if some concepts of Machine Learning algorithms can appear complex to most computer programming beginners, this book takes the time to explain them in a simple and concise way. Would You Like To Know More? Scroll up and click the BUY NOW button to get your copy now!

Hands-On Unsupervised Learning Using Python - Ankur A. Patel 2019-02-21

Many industry experts consider unsupervised learning the next frontier in artificial intelligence, one that may hold the key to general artificial intelligence. Since the majority of the world's data is unlabeled, conventional supervised learning cannot be applied. Unsupervised learning, on the other hand, can be applied to unlabeled datasets to discover meaningful patterns buried deep in the data, patterns that may be near impossible for humans to uncover. Author Ankur Patel shows you how to apply unsupervised learning using two simple, production-ready Python frameworks: Scikit-learn and TensorFlow using Keras. With code and hands-on examples, data scientists will identify difficult-to-find patterns in data and gain deeper business insight, detect anomalies, perform automatic feature engineering and selection, and generate synthetic datasets. All you need is programming and some machine learning experience to get started. Compare the strengths and weaknesses of the different machine learning approaches: supervised, unsupervised, and reinforcement learning Set up and manage machine learning projects end-to-end Build an anomaly detection system to catch credit card fraud Clusters users into distinct and homogeneous groups Perform semisupervised learning Develop movie recommender systems using restricted Boltzmann machines Generate synthetic images using generative adversarial networks

Markov Models Supervised and Unsupervised Machine Learning - William Sullivan 2017-09-03

Markov Models Supervised and Unsupervised Machine Learning: Mastering Data Science & Python BONUS Buy a paperback copy of this book NOW and you will get the Kindle version Absolutely FREE via Kindle Matchbook Do you want to MASTER Data science? Understand Markov Models and learn the real world application to accurately predict future events Extend your knowledge of machine learning, python programming & algorithms What you'll Learn Mathematics Behind Markov Algorithms 3 Main Problems Of Markov Models And How To Overcome Them Uses And Applications For Machine Learning Python Programming Speech Recognition Weather Reporting The Markov Rule And Markov's Model Fundamental Axioms Of Statistics And Probability Solutions Theories Artificial Intelligence Bayesian Inference Important Tools Used With HMM And Much, Much, More! The objective of this book is to teach you the essentials at the most fundamental level You will learn the ins and outs of machine learning, and its real world applications Also, specifically you will discover practical implementations of Markov Models in python programming This book offers high value and is the greatest investment in your knowledge base you can make that will benefit you in the long run Why not take this opportunity to take advantage now and get ahead of everyone else? Other books can easily retail for $100s- $1000s of dollars! Get equipped with the knowledge you need to advance yourself today at an affordable price What are you waiting for? Don't miss out on this opportunity! Grab Your Copy Now!

Statistics for Machine Learning - Pratap Dangeti 2017-07-21

Build Machine Learning models with a sound statistical understanding. About This Book Learn about the statistics behind powerful predictive models with p-value, ANOVA, and F- statistics. Implement statistical computations programmatically for supervised and unsupervised learning through K-means clustering. Master the statistical aspect of Machine Learning with the help of this example-rich guide to R and Python. Who This Book Is For This book is intended for developers with little to no background in statistics, who want to implement Machine Learning in their systems. Some programming knowledge in R or Python will be useful. What You Will Learn Understand the Statistical and Machine Learning fundamentals necessary to build models Understand the major differences and parallels between the statistical way and the Machine Learning way to solve problems Learn how to prepare data and feed models by using the appropriate Machine Learning algorithms from the more-than-adequate R and Python packages Analyze the results and tune the model appropriately to your own predictive goals Understand the concepts of required statistics for Machine Learning Introduce yourself to necessary fundamentals required for building supervised & unsupervised deep learning models Learn reinforcement learning and its application in the field of artificial intelligence domain In Detail Complex statistics in Machine Learning worry a lot of developers. Knowing statistics helps you build strong Machine Learning models that are optimized for a given problem statement. This book will teach you all it takes to perform complex statistical computations required for Machine Learning. You will gain information on statistics behind supervised learning, unsupervised learning, reinforcement learning, and more. Understand the real-world examples that discuss the statistical side of Machine Learning and familiarize yourself with it. You will also design programs for performing tasks such as model, parameter fitting, regression, classification, density collection, and more. By the end of the book, you will have mastered the required statistics for Machine Learning and will be able to apply your new skills to any sort of industry problem. Style and approach This practical, step-by-step guide will give you an understanding of the Statistical and Machine Learning fundamentals you'll need to build models.

Hands-on Scikit-Learn for Machine Learning Applications - David Paper 2019-11-16

Aspiring data science professionals can learn the Scikit-Learn library along with the fundamentals of machine learning with this book. The book combines the Anaconda Python distribution with the popular Scikit-Learn library to demonstrate a wide range of supervised and unsupervised machine learning algorithms. Care is taken to walk you through the principles of machine learning through clear examples written in Python that you can try out and experiment with at home on your own machine. All applied math and programming skills required to master the content are covered in this book. In-depth knowledge of object-oriented programming is not required as working and complete

examples are provided and explained. Coding examples are in-depth and complex when necessary. They are also concise, accurate, and complete, and complement the machine learning concepts introduced. Working the examples helps to build the skills necessary to understand and apply complex machine learning algorithms. Hands-on Scikit-Learn for Machine Learning Applications is an excellent starting point for those pursuing a career in machine learning. Students of this book will learn the fundamentals that are a prerequisite to competency. Readers will be exposed to the Anaconda distribution of Python that is designed specifically for data science professionals, and will build skills in the popular Scikit-Learn library that underlies many machine learning applications in the world of Python. What You'll LearnWork with simple and complex datasets common to Scikit-Learn Manipulate data into vectors and matrices for algorithmic processing Become familiar with the Anaconda distribution used in data scienceApply machine learning with Classifiers, Regressors, and Dimensionality Reduction Tune algorithms and find the best algorithms for each dataset Load data from and save to CSV, JSON, Numpy, and Pandas formats Who This Book Is For The aspiring data scientist yearning to break into machine learning through mastering the underlying fundamentals that are sometimes skipped over in the rush to be productive. Some knowledge of object-oriented programming and very basic applied linear algebra will make learning easier, although anyone can benefit from this book.

Mastering Machine Learning with Python in Six Steps - Manohar Swamynathan 2017-06-07

Master machine learning with Python in six steps and explore fundamental to advanced topics, all designed to make you a worthy practitioner. This book’s approach is based on the “Six degrees of separation” theory, which states that everyone and everything is a maximum of six steps away. Mastering Machine Learning with Python in Six Steps presents each topic in two parts: theoretical concepts and practical implementation using suitable Python packages. You’ll learn the fundamentals of Python programming language, machine learning history, evolution, and the system development frameworks. Key data mining/analysis concepts, such as feature dimension reduction, regression, time series forecasting and their efficient implementation in Scikit-learn are also covered. Finally, you’ll explore advanced text mining techniques, neural networks and deep learning techniques, and their implementation. All the code presented in the book will be available in the form of iPython notebooks to enable you to try out these examples and extend them to your advantage. What You'll Learn Examine the fundamentals of Python programming language Review machine Learning history and evolution Understand machine learning system development frameworks Implement supervised/unsupervised/reinforcement learning techniques with examples Explore fundamental to advanced text mining techniques Implement various deep learning frameworks Who This Book Is For Python developers or data engineers looking to expand their knowledge or career into machine learning area. Non-Python (R, SAS, SPSS, Matlab or any other language) machine learning practitioners looking to expand their implementation skills in Python. Novice machine learning practitioners looking to learn advanced topics, such as hyperparameter tuning, various ensemble techniques, natural language processing (NLP), deep learning, and basics of reinforcement learning.

PYTHON MACHINE LEARNING - Oliver R. Simpson 2020-12-30

Markov Models - Robert Wilson 2017-06-10

Do you want to become a data science Savvy? If reading about Markov models, stochastic processes, and probabilities leaves you scratching your head, then you have definitely come to the right place. If you are looking for the most no-nonsense guide that will keep you on the right course during the turbulent ride filled with scientific enigmas, machine learning, and predicting probabilities of hidden, unobservable states, then you have found your perfect companion. This book will Cover: What is Markov models How to make predictions with Markov Models How to learn without supervision How do Markov Models use prediction? Hidden Markov Models and how to use them The secrets of Markov Chains Tips and tricks on how to use Markov Models and machine learning Markov Models with Python Markov Models Examples and predictions How to build and implement HMM algorithms How to use Markov Models to master machine learning The secrets of Supervised and unsupervised machine learning The three components of Hidden Markov Models And much, much more! By the end of this book, I guarantee that you will dive easily into the data science world. Save yourself the hard work and frustration by downloading this book today. Download your free copy today (Kindle Unlimited only)

Python Machine Learning - Samuel Hack 2020-12-02

Discover the Incredible World of Machine Learning With This Amazing Guide Do you want to understand machine learning, but it all looks too daunting and complex? Afraid to open the 'pandora's box' and waste hours searching for answers? Then keep reading Written with the beginner in mind, this powerful guide breaks down everything you need to know about machine learning and Python in a simple, easy-to-understand way. So many other books make machine learning look impossible to understand and even harder to master - but now you can familiarize yourself with this incredible technology like never before! With a detailed and concise overview of the fundamentals, along with the challenges and limitations currently being tackled by the pros, inside this comprehensive guide you will Learn the Fundamentals of Machine Learning which Are Being Developed and Advanced with Python Master the Nuances of 12 of the Most Popular and Widely-Used Machine Learning Algorithms, in a Language that Requires No Prior Background in Python Discover the Details of the Supervised, Unsupervised, and Reinforcement Algorithms, which Serve as the Skeleton of Hundreds of Machine Learning Algorithms Being Developed Every Day Become Familiar with Data Science Technology, an Umbrella Term Used for the Cutting-Edge Technologies of Today Dive Into the Functioning of Scikit-Learn Library and Develop Machine Learning Models, with a Detailed Walkthrough and Open Source Database using Illustrations and actual Python Code Understand the Entire Process of Creating Neural Network Models on TensorFlow, Using Open Source Data Sets and real Python Code Uncover the Secrets of the Most Critical Aspect of Developing a Machine Learning Model - Data Pre-Processing and Training/Testing Subsets With a wealth of tips and tricks, along with invaluable advice guaranteed to help you with your machine learning journey, this book is a powerful and revolutionary tool for creating, developing, and using machine learning. From understanding the Python language to creating data sets and building neural networks, now you can become the master of machine learning with this incredible guide! So what are you waiting for? Buy Now and Join the Millions of People Using Machine Learning Today!

Advanced Data Analytics Using Python - Sayan Mukhopadhyay 2018-03-29

Gain a broad foundation of advanced data analytics concepts and discover the recent revolution in databases such as Neo4j, Elasticsearch, and MongoDB. This book discusses how to implement ETL techniques including topical crawling, which is applied in domains such as high-frequency algorithmic trading and goal-oriented dialog systems. You’ll also see examples of machine learning concepts such as semi-supervised learning, deep learning, and NLP. Advanced Data Analytics Using Python also covers important traditional data analysis techniques such as time series and principal component analysis. After reading this book you will have experience of every technical aspect of an analytics project. You’ll get to know the concepts using Python code, giving you samples to use in your own projects. What You Will Learn Work with data analysis techniques such as classification, clustering, regression, and forecasting Handle structured and unstructured data, ETL techniques, and different kinds of databases such as Neo4j, Elasticsearch, MongoDB, and MySQL Examine the different big data frameworks, including Hadoop and Spark Discover advanced machine learning concepts such as semi-supervised learning, deep learning, and NLP Who This Book Is For Data scientists and software developers interested in the field of data analytics.

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

Hands-On Unsupervised Learning with Python - Giuseppe Bonaccorso 2019-02-28

Discover the skill-sets required to implement various approaches to Machine Learning with Python Key Features Explore unsupervised learning with clustering, autoencoders, restricted Boltzmann machines, and more Build your own neural network models using modern Python libraries Practical examples show you how to implement different machine learning and deep learning techniques Book Description Unsupervised learning is about making use of raw, untagged data and applying learning algorithms to it to help a machine predict its outcome. With this book, you will explore the concept of unsupervised learning to cluster large sets of data and analyze them repeatedly until the desired outcome is found using Python. This book starts with the key differences between supervised, unsupervised, and semi-supervised learning. You will be introduced to the best-used libraries and frameworks from the Python ecosystem and address unsupervised learning in both the machine learning and deep learning domains. You will explore various algorithms, techniques that are used to implement unsupervised learning in real-world use cases. You will learn a variety of unsupervised learning approaches, including randomized optimization, clustering, feature selection and transformation, and information theory. You will get hands-on experience with how neural networks can be employed in unsupervised scenarios. You will also explore the steps involved in building and training a GAN in order to process images. By the end of this book, you will have learned the art of unsupervised learning for different real-world challenges. What you will learn Use cluster algorithms to identify and optimize natural groups of data Explore advanced non-linear and hierarchical clustering in action Soft label assignments for fuzzy c-means and Gaussian mixture models Detect anomalies through density estimation Perform principal component analysis using neural network models Create unsupervised models using GANs Who this book is for This book is intended for statisticians, data scientists, machine learning developers, and deep learning practitioners who want to build smart applications by implementing key building block unsupervised learning, and master all the new techniques and algorithms offered in machine learning and deep learning using real-world examples. Some prior knowledge of machine learning concepts and statistics is desirable.

Data Science with Python - Rohan Chopra 2019-07-09

Python Machine Learning - Andrew Park 2021-04-27

 55% OFF for Bookstores! NOW at $ 13.49 instead of $ 29.97! LAST DAYS! Do you want to learn how to design and master different Machine Learning algorithms quickly and easily?Your Customers Will Love This Amazing Guide! Today, we live in the era of Artificial Intelligence. Self-driving cars, customized product recommendations, real-time pricing, speech and facial recognition are just a few examples proving this truth. Also, think about medical diagnostics or automation of mundane and repetitive labor tasks; all these highlight the fact that we live in interesting times. From research topics to projects and applications in different stages of production, there is a lot going on in the world of Machine Learning. Machines and automation represent a huge part of our daily life. They are becoming part of our experience and existence. This is Machine Learning. Artificial Intelligence is currently one of the most thriving fields any programmer would wish to delve into, and for a good reason: this is the future! Simply put, Machine Learning is about teaching machines to think and make decisions as we would. The difference between the way machines learn and the way we do is that while for the most part we learn from experiences, machines learn from data. Starting from scratch, Python Machine Learning explains how this happens, how machines build their experience and compounding knowledge. Data forms the core of Machine Learning because within data lie truths whose depths exceed our imagination. The computations machines can perform on data are incredible, beyond anything a human brain could do. Once we introduce data to a machine learning model, we must create an environment where we update the data stream frequently. This builds the machine's learning ability. The more data Machine Learning models are exposed to, the easier it is for these models to expand their potential. Some of the topics that we will discuss inside include: What is Machine Learning and how it is applied in real-world situations Understanding the differences between Machine Learning, Deep Learning, and Artificial Intelligence Supervised learning, unsupervised learning, and semi-supervised learning The place of Regression techniques in Machine Learning, including Linear Regression in Python Machine learning training models How to use Lists and Modules in Python The 12 essential libraries for Machine Learning in Python What is the Tensorflow library Artificial Neural Networks And Much More! While most books only focus on widespread details without going deeper into the different models and techniques, Python Machine Learning explains how to master the concepts of Machine Learning technology and helps you to understand how researchers are breaking the boundaries of Data Science to mimic human intelligence in machines using various Machine Learning algorithms. Even if some concepts of Machine Learning algorithms can appear complex to most computer programming beginners, this book takes the time to explain them in a simple and concise way. Would You Like To Know More? Buy It NOW And Let Your Customers Get Addicted To This Amazing Book!

Practical Data Science with Jupyter - Prateek Gupta 2021-03-01

Solve business problems with data-driven techniques and easy-to-follow Python examples KEY FEATURES ● Essential coverage on statistics and data science techniques. ● Exposure to Jupyter, PyCharm, and use of GitHub. ● Real use-cases, best practices, and smart techniques on the use of data science for data applications. DESCRIPTION This book begins with an introduction to Data Science followed by the Python concepts. The readers will understand how to interact with various database and Statistics concepts with their Python implementations. You will learn how to import various types of data in Python, which is the first step of the data analysis process. Once you become comfortable with data importing, you will clean the dataset and after that will gain an understanding about various visualization charts. This book focuses on how to apply feature engineering techniques to make your data more valuable to an algorithm. The readers will get to know various Machine Learning Algorithms, concepts, Time Series data, and a few real-world case studies. This book also presents some best practices that will help you to be industry-ready. This book focuses on how to practice data science techniques while learning their concepts using Python and Jupyter. This book is a complete answer to the most common question that how can you get started with Data Science instead of explaining Mathematics and Statistics behind the Machine Learning Algorithms. WHAT YOU WILL LEARN ● Rapid understanding of Python concepts for data science applications. ● Understand and practice how to run data analysis with data science techniques and algorithms. ● Learn feature engineering, dealing with different datasets, and most trending machine learning algorithms. ● Become self-sufficient to perform data science tasks with the best tools and techniques. WHO THIS BOOK IS FOR This book is for a beginner or an experienced professional who is thinking about a career or a career switch to Data Science. Each chapter contains easy-to-follow Python examples. TABLE OF CONTENTS 1. Data Science Fundamentals 2. Installing Software and System Setup 3. Lists and Dictionaries 4. Package, Function, and Loop 5. NumPy Foundation 6. Pandas and DataFrame 7. Interacting with Databases 8. Thinking Statistically in Data Science 9. How to Import Data in Python? 10. Cleaning of Imported Data 11. Data Visualization 12. Data Pre-processing 13. Supervised Machine Learning 14. Unsupervised Machine Learning 15. Handling Time-Series Data 16. Time-Series Methods 17. Case Study-1 18. Case Study-2 19. Case Study-3 20. Case Study-4 21. Python Virtual Environment 22. Introduction to An Advanced Algorithm - CatBoost 23. Revision of All Chapters' Learning

Data Science with Jupyter - Prateek Gupta 2019-03-27

Step-by-step guide to practising data science techniques with Jupyter notebooks Description Modern businesses are awash with data, making data driven decision-making tasks increasingly complex. As a result, relevant technical expertise and analytical skills are required to do such tasks. This book aims to equip you with just enough knowledge of Python in conjunction with skills to use powerful tool such as Jupyter Notebook in order to succeed in the role of a data scientist. The book starts with a brief introduction to the world of data science and the opportunities you may come across along with an overview of the key topics covered in the book. You will learn how to setup Anaconda installation which comes with Jupyter and preinstalled Python packages. Before diving in to several supervised, unsupervised and other machine learning techniques, you'll learn how to use basic data structures, functions, libraries and packages required to import, clean, visualize and process data. Several machine learning techniques such as regression, classification, clustering, time-series etc have been explained with the use of practical examples and by comparing the performance of various models. By the end of the book, you will come across few case studies to

put your knowledge to practice and solve real-life business problems such as building a movie recommendation engine, classifying spam messages, predicting the ability of a borrower to repay loan on time and time series forecasting of housing prices. Remember to practice additional examples provided in the code bundle of the book to master these techniques. **Audience** The book is intended for anyone looking for a career in data science, all aspiring data scientists who want to learn the most powerful programming language in Machine Learning or working professionals who want to switch their career in Data Science. While no prior knowledge of Data Science or related technologies is assumed, it will be helpful to have some programming experience. **Key Features** · Acquire Python skills to do independent data science projects · Learn the basics of linear algebra and statistical science in Python way · Understand how and when they're used in data science · Build predictive models, tune their parameters and analyze performance in few steps · Cluster, transform, visualize, and extract insights from unlabelled datasets · Learn how to use matplotlib and seaborn for data visualization · Implement and save machine learning models for real-world business scenarios **Table of Contents** 1) Data Science Fundamentals 2) Installing Software and Setting up 3) Lists and Dictionaries 4) Function and Packages 5) NumPy Foundation 6) Pandas and Dataframe 7) Interacting with Databases 8) Thinking Statistically in Data Science 9) How to import data in Python? 10) Cleaning of imported data 11) Data Visualization 12) Data Pre-processing 13) Supervised Machine Learning 14) Unsupervised Machine Learning 15) Handling Time-Series Data 16) Time-Series Methods 17) Case Study – 1 18) Case Study – 2 19) Case Study – 3 20) Case Study – 4

Markov Models - Robert Tier 2017-03-12

Discover How to Master Unsupervised Machine Learning and Crack Some of the Greatest Data Enigmas With Markov Models! Would you like to unlock the mysteries of Data Science? Are you yearning to understand how to make educated predictions on the weather, horse races, your unborn baby's facial features, or your boss's next black mood? Would you like a guide to explain these and many other "phenomenons" in clear, easy-to-understand language? If the answer is 'yes' then you'll want to Download this book today! It's never been easier to make predictions and smart analysis with the use of Markov Models. You don't need a crystal ball or any wizardry. The only thing you need is science, some average high-school math skills and a decent knowledge of Python programming in order to solve the most perplexing problems. And if you're unfamiliar with Python programming or Machine learning, don't worry, it'll all be explained in this book. Inside this book I'm going to show you how to be a data master. You'll discover how to solve almost-unsolvable machine learning problems in no time. I'm going to show you the tools, code, and methods needed to effectively use Markov Models for any event or situation you come across. Download This Book Today and Discover: How to program with Python The secrets behind unsupervised machine learning How to use Markov Models to master machine learning How to make predictions with Markov Models How to use Markov Chains How to use Hidden Markov Models The 3 main problems of Markov Models and how to overcome them How to use Python to find the probability of longer and more complex problems What packages to get for using Python for Markov Models How to implement HMM algorithms How to build a speech recognizer A code that will turn gibberish into understandable text How to forecast the weather The secrets behind Queueing Theory The Markov Mutation Model The Secret Structure of Google's PageRank Algorithm How to perform Google PageRank in PythonAnd much, much more! So save yourself some time and frustration trying to learning these intricate algorithms on your own. Let me help you get started quickly and easily. Download Markov Models today and Enjoy Mastering Data Science!

Machine Learning with Scikit-Learn Quick Start Guide - Kevin Jolly 2018-10-30

Deploy supervised and unsupervised machine learning algorithms using scikit-learn to perform classification, regression, and clustering. Key Features Build your first machine learning model using scikit-learn Train supervised and unsupervised models using popular techniques such as classification, regression and clustering Understand how scikit-learn can be applied to different types of machine learning problems Book Description Scikit-learn is a robust machine learning library for the Python programming language. It provides a set of supervised and unsupervised learning algorithms. This book is the easiest way to learn how to deploy, optimize, and evaluate all of the important machine learning algorithms that scikit-learn provides. This book teaches you how to use scikit-learn for machine learning. You will start by setting up and configuring your machine learning environment with scikit-learn. To put scikit-learn to use, you will learn how to implement various supervised and unsupervised machine learning models. You will learn classification, regression, and clustering techniques to work with different types of datasets and train your models. Finally, you will learn about an effective pipeline to help you build a machine learning project from scratch. By the end of this book, you will be confident in building your own machine learning models for accurate predictions. What you will learn Learn how to work with all scikit-learn's machine learning algorithms Install and set up scikit-learn to build your first machine learning model Employ Unsupervised Machine Learning Algorithms to cluster unlabelled data into groups Perform classification and regression machine learning Use an effective pipeline to build a machine learning project from scratch Who this book is for This book is for aspiring machine learning developers who want to get started with scikit-learn. Intermediate knowledge of Python programming and some fundamental knowledge of linear algebra and probability will help.

Python Deep Learning - Valentino Zocca 2017-04-28

Take your machine learning skills to the next level by mastering Deep Learning concepts and algorithms using Python. About This Book Explore and create intelligent systems using cutting-edge deep learning techniques Implement deep learning algorithms and work with revolutionary libraries in Python Get real-world examples and easy-to-follow tutorials on Theano, TensorFlow, H2O and more Who This Book Is For This book is for Data Science practitioners as well as aspirants who have a basic foundational understanding of Machine Learning concepts and some programming experience with Python. A mathematical background with a conceptual understanding of calculus and statistics is also desired. What You Will Learn Get a practical deep dive into deep learning algorithms Explore deep learning further with Theano, Caffe, Keras, and TensorFlow Learn about two of the most powerful techniques at the core of many practical deep learning implementations: Auto-Encoders and Restricted Boltzmann Machines Dive into Deep Belief Nets and Deep Neural Networks Discover more deep learning algorithms with Dropout and Convolutional Neural Networks Get to know device strategies so you can use deep learning algorithms and libraries in the real world In Detail With an increasing interest in AI around the world, deep learning has attracted a great deal of public attention. Every day, deep learning algorithms are used broadly across different industries. The book will give you all the practical information available on the subject, including the best practices, using real-world use cases. You will learn to recognize and extract information to increase predictive accuracy and optimize results. Starting with a quick recap of important machine learning concepts, the book will delve straight into deep learning principles using Sci-kit learn. Moving ahead, you will learn to use the latest open source libraries such as Theano, Keras, Google's TensorFlow, and H20. Use this guide to uncover the difficulties of pattern recognition, scaling data with greater accuracy and discussing deep learning algorithms and techniques. Whether you want to dive deeper into Deep Learning, or want to investigate how to get more out of this powerful technology, you'll find everything inside. Style and approach Python Machine Learning by example follows practical hands on approach. It walks you through the key elements of Python and its powerful machine learning libraries with the help of real world projects.

Machine Learning with Python - ML and Ai Academy 2020-02-14

Are you looking for a complete guide of machine learning and artificial intelligence? Then you have found just the book you need to understand and master the fundamentals of machine learning and artificial intelligence technology to kick-start your business and master the Python programming language to develop a winning machine-learning model. With the rise of the modern-day smart customer, a competitive race has been ignited among the businesses that are starting to rely upon innovative technologies. The most important technologies are machine-learning, data mining technology, and artificial intelligence technology to gain an edge over the competition; resulting in high paying and rewarding jobs for people like you who have the in-demand machine learning technical skillset. However, performing a simple Google search on "what is machine learning?" unhinges a "Pandora's box" of forums, academic research, and hearsay. However, it is essentials to master the basics of these technologies as well as the basic concepts of Python coding and how you can utilize your coding skills to analyze a large volume of data and uncover valuable information that can otherwise be easily lost in the volume. Python was designed primarily to emphasize the readability of the programming code, and its syntax enables programmers to convey ideas using fewer lines of code. Python

programming language increases the speed of operation while allowing for higher efficiency in creating system integrations. The power of programming languages in our digital world cannot be underestimated. Some of the highlights of this book include: Deep dive into the data mining process, the benefits of using data mining technology, the challenges facing the data mining technology and learn about some data mining tools that you can leverage for your business. Gain an in-depth understanding of various machine-learning algorithms do assess the best Machine-learning algorithm applicable to your business model. Dig deep into the development and application of some of the most popular supervised and unsupervised machine learning algorithms. Step by step instructions on how to install Python on your operating systems (Windows, Mac, and Linux). Basic concepts of writing efficient and effective Python codes, focusing on various programming elements such as Booleans, Tuples, Sets, Dictionaries, and much more. Learn everything you need to know for successful development and training of neural network models using one of the most popular machine learning libraries called "TensorFlow." Deep dive into the concept of personalized marketing, predictive analytics, customer analytics and exploratory data analysis presented with details on how you can make sense out of all your customer behavioral data. Remember knowledge is power, and with the great power you will gather from this book, you will be armed to make sound personal and professional technological choices. Your understanding of Python, Artificial Intelligence and machine learning will improve drastically, and you will be poised to develop your very own machine-learning model. Therefore, be a Good Samaritan, spread the word to your tech-savvy friends and family, and help them get access to this power! Even if you have never studied Python language before, you can learn it quickly. So what are you waiting for? Go to the top of the page and click Buy Now!

Hands-On Transfer Learning with Python - Dipanjan Sarkar 2018-08-31

Deep learning simplified by taking supervised, unsupervised, and reinforcement learning to the next level using the Python ecosystem Key Features Build deep learning models with transfer learning principles in Python implement transfer learning to solve real-world research problems Perform complex operations such as image captioning neural style transfer Book Description Transfer learning is a machine learning (ML) technique where knowledge gained during training a set of problems can be used to solve other similar problems. The purpose of this book is two-fold; firstly, we focus on detailed coverage of deep learning (DL) and transfer learning, comparing and contrasting the two with easy-to-follow concepts and examples. The second area of focus is real-world examples and research problems using TensorFlow, Keras, and the Python ecosystem with hands-on examples. The book starts with the key essential concepts of ML and DL, followed by depiction and coverage of important DL architectures such as convolutional neural networks (CNNs), deep neural networks (DNNs), recurrent neural networks (RNNs), long short-term memory (LSTM), and capsule networks. Our focus then shifts to transfer learning concepts, such as model freezing, fine-tuning, pre-trained models including VGG, inception, ResNet, and how these systems perform better than DL models with practical examples. In the concluding chapters, we will focus on a multitude of real-world case studies and problems associated with areas such as computer vision, audio analysis and natural language processing (NLP). By the end of this book, you will be able to implement both DL and transfer learning principles in your own systems. What you will learn Set up your own DL environment with graphics processing unit (GPU) and Cloud support Delve into transfer learning principles with ML and DL models Explore various DL architectures, including CNN, LSTM, and capsule networks Learn about data and network representation and loss functions Get to grips with models and strategies in transfer learning Walk through potential challenges in building complex transfer learning models from scratch Explore real-world research problems related to computer vision and audio analysis Understand how transfer learning can be leveraged in NLP Who this book is for Hands-On Transfer Learning with Python is for data scientists, machine learning engineers, analysts and developers with an interest in data and applying state-of-the-art transfer learning methodologies to solve tough real-world problems. Basic proficiency in machine learning and Python is required.

Python Machine Learning - Sebastian Raschka 2015-09-23

Unlock deeper insights into Machine Leaning with this vital guide to cutting-edge predictive analytics About This Book Leverage Python's most powerful open-source libraries for deep learning, data wrangling, and data visualization Learn effective strategies and best practices to improve and optimize machine learning systems and algorithms Ask – and answer – tough questions of your data with robust statistical models, built for a range of datasets Who This Book Is For If you want to find out how to use Python to start answering critical questions of your data, pick up Python Machine Learning – whether you want to get started from scratch or want to extend your data science knowledge, this is an essential and unmissable resource. What You Will Learn Explore how to use different machine learning models to ask different questions of your data Learn how to build neural networks using Keras and Theano Find out how to write clean and elegant Python code that will optimize the strength of your algorithms Discover how to embed your machine learning model in a web application for increased accessibility Predict continuous target outcomes using regression analysis Uncover hidden patterns and structures in data with clustering Organize data using effective pre-processing techniques Get to grips with sentiment analysis to delve deeper into textual and social media data In Detail Machine learning and predictive analytics are transforming the way businesses and other organizations operate. Being able to understand trends and patterns in complex data is critical to success, becoming one of the key strategies for unlocking growth in a challenging contemporary marketplace. Python can help you deliver key insights into your data – its unique capabilities as a language let you build sophisticated algorithms and statistical models that can reveal new perspectives and answer key questions that are vital for success. Python Machine Learning gives you access to the world of predictive analytics and demonstrates why Python is one of the world's leading data science languages. If you want to ask better questions of data, or need to improve and extend the capabilities of your machine learning systems, this practical data science book is invaluable. Covering a wide range of powerful Python libraries, including scikit-learn, Theano, and Keras, and featuring guidance and tips on everything from sentiment analysis to neural networks, you'll soon be able to answer some of the most important questions facing you and your organization. Style and approach Python Machine Learning connects the fundamental theoretical principles behind machine learning to their practical application in a way that focuses you on asking and answering the right questions. It walks you through the key elements of Python and its powerful machine learning libraries, while demonstrating how to get to grips with a range of statistical models.

Mastering Machine Learning Algorithms - Giuseppe Bonaccorso 2020-01-31

Updated and revised second edition of the bestselling guide to exploring and mastering the most important algorithms for solving complex machine learning problems Key Features Updated to include new algorithms and techniques Code updated to Python 3.8 & TensorFlow 2.x New coverage of regression analysis, time series analysis, deep learning models, and cutting-edge applications Book Description Mastering Machine Learning Algorithms, Second Edition helps you harness the real power of machine learning algorithms in order to implement smarter ways of meeting today's overwhelming data needs. This newly updated and revised guide will help you master algorithms used widely in semi-supervised learning, reinforcement learning, supervised learning, and unsupervised learning domains. You will use all the modern libraries from the Python ecosystem – including NumPy and Keras – to extract features from varied complexities of data. Ranging from Bayesian models to the Markov chain Monte Carlo algorithm to Hidden Markov models, this machine learning book teaches you how to extract features from your dataset, perform complex dimensionality reduction, and train supervised and semi-supervised models by making use of Python-based libraries such as scikit-learn. You will also discover practical applications for complex techniques such as maximum likelihood estimation, Hebbian learning, and ensemble learning, and how to use TensorFlow 2.x to train effective deep neural networks. By the end of this book, you will be ready to implement and solve end-to-end machine learning problems and use case scenarios. What you will learn Understand the characteristics of a machine learning algorithm Implement algorithms from supervised, semi-supervised, unsupervised, and RL domains Learn how regression works in time-series analysis and risk prediction Create, model, and train complex probabilistic models Cluster high-dimensional data and evaluate model accuracy Discover how artificial neural networks work – train, optimize, and validate them Work with autoencoders, Hebbian networks, and GANs Who this book is for This book is for data science professionals who want to delve into complex ML algorithms to understand how various machine learning models can be built. Knowledge of Python programming is required.

Data Classification and Incremental Clustering in Data Mining and Machine Learning - Sanjay Chakraborty 2022-04-11

This book is a comprehensive, hands-on guide to the basics of data mining and machine learning with a special emphasis on supervised and unsupervised learning methods. The book lays stress on the new ways of thinking needed to master in machine learning based on the Python, R, and Java programming platforms. This book first provides an understanding of data mining, machine learning and their applications, giving special attention to classification and clustering techniques. The authors offer a discussion on data mining and machine learning techniques with case studies and examples. The book also describes the hands-on coding examples of some well-known supervised and unsupervised learning techniques using three different and popular coding platforms: R, Python, and Java. This book explains some of the most popular classification techniques (K-NN, Naïve Bayes, Decision tree, Random forest, Support vector machine etc,) along with the basic description of artificial neural network and deep neural network. The book is useful for professionals, students studying data mining and machine learning, and researchers in supervised and unsupervised learning techniques.

Mastering Machine Learning Algorithms - Second Edition - Giuseppe Bonaccorso 2020-01-31

Hands-On Unsupervised Learning with Python - Giuseppe Bonaccorso 2019-02-28

Discover the skill-sets required to implement various approaches to Machine Learning with Python Key FeaturesExplore unsupervised learning with clustering, autoencoders, restricted Boltzmann machines, and moreBuild your own neural network models using modern Python librariesPractical examples show you how to implement different machine learning and deep learning techniquesBook Description Unsupervised learning is about making use of raw, untagged data and applying learning algorithms to it to help a machine predict its outcome. With this book, you will explore the concept of unsupervised learning to cluster large sets of data and analyze them repeatedly until the desired outcome is found using Python. This book starts with the key differences between supervised, unsupervised, and semi-supervised learning. You will be introduced to the best-used libraries and frameworks from the Python ecosystem and address unsupervised learning in both the machine learning and deep learning domains. You will explore various algorithms, techniques that are used to implement unsupervised learning in real-world use cases. You will learn a variety of unsupervised learning approaches, including randomized optimization, clustering, feature selection and transformation, and information theory. You will get hands-on experience with how neural networks can be employed in unsupervised scenarios. You will also explore the steps involved in building and training a GAN in order to process images. By the end of this book, you will have learned the art of unsupervised learning for different real-world challenges. What you will learnUse cluster algorithms to identify and optimize natural groups of dataExplore advanced non-linear and hierarchical clustering in actionSoft label assignments for fuzzy c-means and Gaussian mixture modelsDetect anomalies through density estimationPerform principal component analysis using neural network modelsCreate unsupervised models using GANsWho this book is for This book is intended for statisticians, data scientists, machine learning developers, and deep learning practitioners who want to build smart applications by implementing key building block unsupervised learning, and master all the new techniques and algorithms offered in machine learning and deep learning using real-world examples. Some prior knowledge of machine learning concepts and statistics is desirable.

Deep Learning from Scratch - Seth Weidman 2019-09-09

With the resurgence of neural networks in the 2010s, deep learning has become essential for machine learning practitioners and even many software engineers. This book provides a comprehensive introduction for data scientists and software engineers with machine learning experience. You'll start with deep learning basics and move quickly to the details of important advanced architectures, implementing everything from scratch along the way. Author Seth Weidman shows you how neural networks work using a first principles approach. You'll learn how to apply multilayer neural networks, convolutional neural networks, and recurrent neural networks from the ground up. With a thorough understanding of how neural networks work mathematically, computationally, and conceptually, you'll be set up for success on all future deep learning projects. This book provides: Extremely clear and thorough mental models—accompanied by working code examples and mathematical explanations—for understanding neural networks Methods for implementing multilayer neural networks from scratch, using an easy-to-understand object-oriented framework Working implementations and clear-cut explanations of convolutional and recurrent neural networks Implementation of these neural network concepts using the popular PyTorch framework

Applied Unsupervised Learning with Python - Benjamin Johnston 2019-05-28

Design clever algorithms that can uncover interesting structures and hidden relationships in unstructured, unlabeled data Key Features Learn how to select the most suitable Python library to solve your problem Compare k-Nearest Neighbor (k-NN) and non-parametric methods and decide when to use them Delve into the applications of neural networks using real-world datasets Book Description Unsupervised learning is a useful and practical solution in situations where labeled data is not available. Applied Unsupervised Learning with Python guides you on the best practices for using unsupervised learning techniques in tandem with Python libraries and extracting meaningful information from unstructured data. The course begins by explaining how basic clustering works to find similar data points in a set. Once you are well versed with the k-means algorithm and how it operates, you'll learn what dimensionality reduction is and where to apply it. As you progress, you'll learn various neural network techniques and how they can improve your model. While studying the applications of unsupervised learning, you will also understand how to mine topics that are trending on Twitter and Facebook and build a news recommendation engine for users. You will complete the course by challenging yourself through various interesting activities such as performing a Market Basket Analysis and identifying relationships between different merchandises. By the end of this course, you will have the skills you need to confidently build your own models using Python. What you will learn Understand the basics and importance of clustering Build k-means, hierarchical, and DBSCAN clustering algorithms from scratch with built-in packages Explore dimensionality reduction and its applications Use scikit-learn (sklearn) to implement and analyse principal component analysis (PCA)on the Iris dataset Employ Keras to build autoencoder models for the CIFAR-10 dataset Apply the Apriori algorithm with machine learning extensions (Mlxtend) to study transaction data Who this book is for This course is designed for developers, data scientists, and machine learning enthusiasts who are interested in unsupervised learning. Some familiarity with Python programming along with basic knowledge of mathematical concepts including exponents, square roots, means, and medians will be beneficial.

Deep Learning with Python - Francois Chollet 2017-11-30

Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Machine learning has made remarkable progress in recent years. We went from near-unusable speech and image recognition, to near-human accuracy. We went from machines that couldn't beat a serious Go player, to defeating a world champion. Behind this progress is deep learning—a combination of engineering advances, best practices, and theory that enables a wealth of previously impossible smart applications. About the Book Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François Chollet, this book builds your understanding through intuitive explanations and practical examples. You'll explore challenging concepts and practice with applications in computer vision, natural-language processing, and generative models. By the time you finish, you'll have the knowledge and hands-on skills to apply deep learning in your own projects. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image-classification models Deep learning for text and sequences Neural style transfer, text generation, and image generation About the Reader Readers need intermediate Python skills. No previous experience with Keras, TensorFlow, or machine learning is required. About the Author François Chollet works on deep learning at Google in Mountain View, CA. He is the creator of the Keras deep-learning library, as well as a contributor to the TensorFlow machine-learning framework. He also does deep-learning research, with a focus on computer vision and the application of machine learning to formal reasoning. His papers have been published at major conferences in the field, including the Conference on Computer Vision

and Pattern Recognition (CVPR), the Conference and Workshop on Neural Information Processing Systems (NIPS), the International Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix B - Running Jupyter notebooks on an EC2 GPU instance

Machine Learning for Time-Series with Python - Ben Auffarth 2021-10-29

Get better insights from time-series data and become proficient in model performance analysis Key FeaturesExplore popular and modern machine learning methods including the latest online and deep learning algorithmsLearn to increase the accuracy of your predictions by matching the right model with the right problemMaster time series via real-world case studies on operations management, digital marketing, finance, and healthcareBook Description The Python time-series ecosystem is huge and often quite hard to get a good grasp on, especially for time-series since there are so many new libraries and new models. This book aims to deepen your understanding of time series by providing a comprehensive overview of popular Python time-series packages and help you build better predictive systems. Machine Learning for Time-Series with Python starts by re-introducing the basics of time series and then builds your understanding of traditional autoregressive models as well as modern non-parametric models. By observing practical examples and the theory behind them, you will become confident with loading time-series datasets from any source, deep learning models like recurrent neural networks and causal convolutional network models, and gradient boosting with feature engineering. This book will also guide you in matching the right model to the right problem by explaining the theory behind several useful models. You'll also have a look at real-world case studies covering weather, traffic, biking, and stock market data. By the end of this book, you should feel at home with effectively analyzing and applying machine learning methods to time-series. What you will learnUnderstand the main classes of time series and learn how to detect outliers and patternsChoose the right method to solve time-series problemsCharacterize seasonal and correlation patterns through autocorrelation and statistical techniquesGet to grips with time-series data visualizationUnderstand classical time-series models like ARMA and ARIMAImplement deep learning models, like Gaussian processes, transformers, and state-of-the-art machine learning modelsBecome familiar with many libraries like Prophet, XGboost, and TensorFlowWho this book is for This book is ideal for data analysts, data scientists, and Python developers who want instantly useful and practical recipes to implement today, and a comprehensive reference book for tomorrow. Basic knowledge of the Python Programming language is a must, while familiarity with statistics will help you get the most out of this book.

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

Python Machine Learning Cookbook - Giuseppe Ciaburro 2019-03-29

Discover powerful ways to effectively solve real-world machine learning problems using key libraries including scikit-learn, TensorFlow, and PyTorch Key Features Learn and implement machine learning algorithms in a variety of real-life scenarios Cover a range of tasks catering to supervised, unsupervised and reinforcement learning techniques Find easy-to-follow code solutions for tackling common and not-so-common challenges Book Description This eagerly anticipated second edition of the popular Python Machine Learning Cookbook will enable you to adopt a fresh approach to dealing with real-world machine learning and deep learning tasks. With the help of over 100 recipes, you will learn to build powerful machine learning applications using modern libraries from the Python ecosystem. The book will also guide you on how to implement various machine learning algorithms for classification, clustering, and recommendation engines, using a recipe-based approach. With emphasis on practical solutions, dedicated sections in the book will help you to apply supervised and unsupervised learning techniques to real-world problems. Toward the concluding chapters, you will get to grips with recipes that teach you advanced techniques including reinforcement learning, deep neural networks, and automated machine learning. By the end of this book, you will be equipped with the skills you need to apply machine learning techniques and leverage the full capabilities of the Python ecosystem through real-world examples. What you will learn Use predictive modeling and apply it to real-world problems Explore data visualization techniques to interact with your data Learn how to build a recommendation engine Understand how to interact with text data and build models to analyze it Work with speech data and recognize spoken words using Hidden Markov Models Get well versed with reinforcement learning, automated ML, and transfer learning Work with image data and build systems for image recognition and biometric face recognition Use deep neural networks to build an optical character recognition system Who this book is for This book is for data scientists, machine learning developers, deep learning enthusiasts and Python programmers who want to solve real-world challenges using machine-learning techniques and algorithms. If you are facing challenges at work and want ready-to-use code solutions to cover key tasks in machine learning and the deep learning domain, then this book is what you need. Familiarity with Python programming and machine learning concepts will be useful.

Hands-On Machine Learning with scikit-learn and Scientific Python Toolkits - Tarek Amr 2020-07-24

Integrate scikit-learn with various tools such as NumPy, pandas, imbalanced-learn, and scikit-surprise and use it to solve real-world machine learning problems Key Features Delve into machine learning with this comprehensive guide to scikit-learn and scientific Python Master the art of data-driven problem-solving with hands-on examples Foster your theoretical and practical knowledge of supervised and unsupervised machine learning algorithms Book Description Machine learning is applied everywhere, from business to research and academia, while scikit-learn is a versatile library that is popular among machine learning practitioners. This book serves as a practical guide for anyone looking to provide hands-on machine learning solutions with scikit-learn and Python toolkits. The book begins with an explanation of machine learning concepts and fundamentals, and strikes a balance between theoretical concepts and their applications. Each chapter covers a different set of algorithms, and shows you how to use them to solve real-life problems. You’ll also learn about various key supervised and unsupervised machine learning algorithms using practical examples. Whether it is an instance-based learning algorithm, Bayesian estimation, a deep neural network, a tree-based ensemble, or a recommendation system, you’ll gain a thorough understanding of its theory and learn when to apply it. As you advance, you’ll learn how to deal with unlabeled data and when to use different clustering and anomaly detection algorithms. By the end of this machine learning book, you’ll have learned how to take a data-driven approach to provide end-to-end machine learning solutions. You’ll also have discovered how to formulate the problem at hand, prepare required data, and evaluate and deploy models in production. What you will learn Understand when to use supervised, unsupervised, or reinforcement learning algorithms Find out how to collect and prepare your data for machine learning tasks Tackle imbalanced data and optimize your algorithm for a bias or variance tradeoff Apply supervised and unsupervised algorithms to overcome various machine learning challenges Employ best practices for tuning your algorithm’s hyper parameters Discover how to use neural networks for classification and regression Build, evaluate, and deploy your machine learning solutions to production Who this book is for This book is for data scientists, machine learning practitioners, and anyone who wants to learn how machine learning algorithms work and to build different machine learning models using the Python ecosystem. The book will help you take your knowledge of machine learning to the next level by grasping its ins and outs and tailoring it to your needs. Working

knowledge of Python and a basic understanding of underlying mathematical and statistical concepts is required.