[MOBI] Hands On Machine Learning With Scikit Learn And Tensorflow

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Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow-Aurélien Géron 2019-09-05 Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows you how. By using concrete examples, minimal theory, and two production-ready Python frameworks—Scikit-Learn and TensorFlow—author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use Scikit-Learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets

Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow-Aurélien Géron 2019-09-05 Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows you how. By using concrete examples, minimal theory, and two production-ready Python frameworks—Scikit-Learn and TensorFlow—author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use Scikit-Learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets

Hands-on Machine Learning with Scikit-Learn, Keras & TensorFlow-Aurélien Géron 2020

Hands-On Machine Learning with Scikit-Learn and TensorFlow-Aurélien Géron 2017-04 Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows you how. By using concrete examples, minimal theory, and two production-ready Python frameworks—scikit-learn and TensorFlow—author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use scikit-learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets Apply practical code examples without acquiring excessive machine learning theory or algorithm details

Hands-On Deep Learning Algorithms with Python-Sudharsan Ravichandiran 2019-07-25 Understand basic to advanced deep learning algorithms, the mathematical principles behind them, and their practical applications. Key Features Get up-to-speed with building your own neural networks from scratch Gain insights into the mathematical principles behind deep learning algorithms Implement popular deep learning algorithms such as CNNs, RNNs, and more using TensorFlow Book Description Deep learning is one of the most popular domains in the AI space, allowing you to develop multi-layered models of varying complexities. This book introduces you to popular deep learning algorithms--from basic to advanced--and shows you how to implement them from scratch using TensorFlow. Throughout the book, you will gain insights into each algorithm, the mathematical principles behind it, and how to implement it in the best possible manner. The book starts by explaining how you can build your own neural networks, followed by introducing you to TensorFlow, the powerful Python-based library for machine learning and deep learning. Moving on, you will get up to speed with gradient descent variants, such as NAG, AMSGrad, AdaDelta, Adam, and Nadam. The book will then provide you with insights into RNNs and LSTM and how to generate song lyrics with RNN. Next, you will master the math for convolutional and capsule networks, widely used for image recognition tasks. Then you learn how machines understand the semantics of words and documents using CBOW, skip-gram, and PV-DM. Afterward, you will explore various GANs, including InfoGAN and LSGAN, and autoencoders, such as contractive autoencoders and VAE. By the end of this book, you will be equipped with all the skills you need to implement deep learning in your own projects. What you will learn Implement basic-to-advanced deep learning algorithms Master the mathematics behind deep learning algorithms Become familiar with gradient descent and its variants, such as AMSGrad, AdaDelta, Adam, and Nadam Implement recurrent networks, such as RNN, LSTM, GRU, and seq2seq models Understand how machines interpret images using CNN and capsule networks Implement different types of generative adversarial network, such as CGAN, CycleGAN, and StackGAN Explore various types of autoencoder, such as Sparse autoencoders, DAE, CAE, and VAE Who this book is for If you are a machine learning engineer, data scientist, AI developer, or simply want to focus on neural networks and deep learning, this book is for you. Those who are completely new to deep learning, but have some experience in machine learning and Python programming, will also find the book very helpful.

Hands-On Machine Learning with R-Brad Boehmke 2019 Hands-on Machine Learning with R provides a practical and applied approach to learning and developing intuition into today's most popular machine learning methods. This book serves as a practitioner's guide to the machine learning process and is meant to help the reader learn to apply the machine learning stack within R, which includes using various R packages such as glmnet, h2o, ranger, xgboost, keras, and others to effectively model and gain insight from their data. The book favors a hands-on approach, providing an intuitive understanding of machine learning concepts through concrete examples and just a little bit of theory. Throughout this book, the reader will be exposed to the entire machine learning process including feature engineering, resampling, hyperparameter tuning, model evaluation, and interpretation. The reader will be exposed to powerful algorithms such as regularized regression, random forests, gradient boosting machines, deep learning, generalized low rank models, and more! By favoring a hands-on approach and using real word data, the reader will gain an intuitive understanding of the architectures and engines that drive these algorithms and packages, understand when and how to tune the various hyperparameters, and be able to interpret model results. By the end of this book, the reader should have a firm grasp of R's machine learning stack and be able to implement a systematic approach for producing high quality modeling results. Features: · Offers a practical and applied introduction to the most popular machine learning methods. · Topics covered include feature engineering, resampling, deep learning and more. · Uses a hands-on approach and real world data.

Hands-On Machine Learning with TensorFlow.js-Kai Sasaki 2019-11-27 Get hands-on with the browser-based JavaScript library for training and deploying machine learning models effectively Key Features Build, train and run machine learning models in the browser using TensorFlow.js Create smart web applications from scratch with the help of useful examples Use flexible and intuitive APIs from TensorFlow.js to understand how machine learning algorithms function Book Description TensorFlow.js is a framework that enables you to create performant machine learning (ML) applications that run smoothly in a web browser. With this book, you will learn how to use TensorFlow.js to implement various ML models through an example-based approach. Starting with the basics, you'll understand how ML models can be built on the web. Moving on, you will get to grips with the TensorFlow.js ecosystem to develop applications more efficiently. The book will then guide you through implementing ML techniques and algorithms such as regression, clustering, fast Fourier transform (FFT), and

dimensionality reduction. You will later cover the Bellman equation to solve Markov decision process (MDP) problems and understand how it is related to reinforcement learning. Finally, you will explore techniques for deploying ML-based web applications and training models with TensorFlow Core. Throughout this ML book, you'll discover useful tips and tricks that will build on your knowledge. By the end of this book, you will be equipped with the skills you need to create your own web-based ML applications and fine-tune models to achieve high performance. What you will learn Use the t-SNE algorithm in TensorFlow.js to reduce dimensions in an input dataset Deploy tfjs-converter to convert Keras models and load them into TensorFlow.js Apply the Bellman equation to solve MDP problems Use the k-means algorithm in TensorFlow.js to visualize prediction results Create tf.js packages with Parcel, Webpack, and Rollup to deploy web apps Implement tf.js backend frameworks to tune and accelerate app performance Who this book is for This book is for web developers who want to learn how to integrate machine learning techniques with web-based applications from scratch. This book will also appeal to data scientists, machine learning practitioners, and deep learning enthusiasts who are looking to perform accelerated, browser-based machine learning on Web using TensorFlow.js. Working knowledge of JavaScript programming language is all you need to get started.

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 Learn Work 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 science Apply 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.

Hands-On Machine Learning with R-Brad Boehmke 2019 "This book is designed to introduce the concept of advanced business analytic approaches and would the first to cover the gamut of how to use the R programming language to apply descriptive, predictive, and prescriptive analytic methodologies for problem solving"--

Hands-On Machine Learning for Algorithmic Trading-Stefan Jansen 2018-12-31 Explore effective trading strategies in real-world markets using NumPy, spaCy, pandas, scikit-learn, and Keras Key Features Implement machine learning algorithms to build, train, and validate algorithmic models Create your own algorithmic design process to apply probabilistic machine learning approaches to trading decisions Develop neural networks for algorithmic trading to perform time series forecasting and smart analytics Book Description The explosive growth of digital data has boosted the demand for expertise in trading strategies that use machine learning (ML). This book enables you to use a broad range of supervised and unsupervised algorithms to extract signals from a wide variety of data sources and create powerful investment strategies. This book shows how to access market, fundamental, and alternative data via API or web scraping and offers a framework to evaluate alternative data. You'll practice the ML workflow from model design, loss metric definition, and parameter tuning to performance evaluation in a time series context. You will understand ML algorithms such as Bayesian and ensemble methods and manifold learning, and will know how to train and tune these models using pandas, statsmodels, sklearn, PyMC3, xgboost, lightgbm, and catboost. This book also teaches you how to extract features from text data using spaCy, classify news and assign sentiment scores, and to use gensim to model topics and learn word embeddings from financial reports. You will also build and evaluate neural networks, including RNNs and CNNs, using Keras and PyTorch to exploit unstructured data for sophisticated strategies. Finally, you will apply transfer learning to satellite images to predict economic activity and use reinforcement learning to build agents that learn to trade in the OpenAI Gym. What you will learn Implement machine learning techniques to solve investment and trading problems Leverage market, fundamental, and alternative data to research alpha factors Design and fine-tune supervised, unsupervised, and reinforcement learning models Optimize portfolio risk and performance using pandas, NumPy, and scikit-learn Integrate machine learning models into a live trading strategy on Quantopian Evaluate strategies using reliable backtesting methodologies for time series Design and evaluate deep neural networks using Keras, PyTorch, and TensorFlow Work with reinforcement learning for trading strategies in the OpenAI Gym Who this book is for Hands-On Machine Learning for Algorithmic Trading is for data analysts, data scientists, and Python developers, as well as investment analysts and portfolio managers working within the finance and investment industry. If you want to perform efficient algorithmic trading by developing smart investigating strategies using machine learning algorithms, this is the book for you. Some understanding of Python and machine learning techniques is mandatory.

Hands-On Machine Learning with C++-Kirill Kolodiazhnyi 2020-05-15 This book will help you explore how to implement different well-known machine learning algorithms with various C++ frameworks and libraries. You will cover basic to advanced machine learning concepts with practical and easy to follow examples. By the end of the book, you will be able to build various machine learning models with ease.

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

Hands-on Machine Learning with JavaScript-Burak Kanber 2018-05-29 A definitive guide to creating an intelligent web application with the best of machine learning and JavaScript Key Features Solve complex computational problems in browser with JavaScript Teach your browser how to learn from rules using the power of machine learning Understand discoveries on web interface and API in machine learning Book Description In over 20 years of existence, JavaScript has been pushing beyond the boundaries of web evolution with proven existence on servers, embedded devices, Smart TVs, IoT, Smart Cars, and more. Today, with the added advantage of machine learning research and support for JS libraries, JavaScript makes your browsers smarter than ever with the ability to learn patterns and reproduce them to become a part of innovative products and applications. Hands-on Machine Learning with JavaScript presents various avenues of machine learning in a practical and objective way, and helps implement them using the JavaScript language. Predicting behaviors, analyzing feelings, grouping data, and building neural models are some of the skills you will build from this book. You will learn how to train your machine learning models and work with different kinds of data. During this journey, you will come across use cases such as face detection, spam filtering, recommendation systems, character recognition, and more. Moreover, you will learn how to work with deep neural networks and guide your applications to gain insights from data. By the end of this book, you'll have gained hands-on knowledge on evaluating and implementing the right model, along with choosing from different JS libraries, such as NaturalNode, brain, harthur, classifier, and many more to design smarter applications. What you will learn Get an overview of state-of-the-art machine learning Understand the pre-processing of data handling, cleaning, and preparation Learn Mining and Pattern Extraction with JavaScript Build your own model for classification, clustering, and prediction Identify the most appropriate model for each type of problem Apply machine learning techniques to real-world applications Learn how JavaScript can be a powerful language for machine learning Who this book is for This book is for you if you are a JavaScript developer who wants to implement machine learning to make applications smarter, gain insightful information from the data, and enter the field of machine learning without switching to another language. Working knowledge of JavaScript language is expected to get the most out of the book.

Hands-On Machine Learning with TensorFlow.js-Kai Sasaki 2019-11-27 Get hands-on with the browser-based JavaScript library for training and deploying machine learning models effectively Key Features Build, train and run machine learning models in the browser using TensorFlow.js Create smart web applications from scratch with the help of useful examples Use flexible and intuitive APIs from TensorFlow.js to understand how machine learning algorithms function Book Description TensorFlow.js is a framework that enables you to create performant machine learning (ML) applications that run smoothly in a web browser. With this book, you will learn how to use TensorFlow.js to implement various ML models through an example-based approach. Starting with the basics, you'll understand how ML models can be built on the web. Moving on, you will get to grips with the TensorFlow.js ecosystem to develop applications more efficiently. The book will then guide you through implementing ML techniques and algorithms such as regression, clustering, fast Fourier transform (FFT), and dimensionality reduction. You will later cover the Bellman equation to solve Markov decision process (MDP) problems and understand how it is related to reinforcement learning. Finally, you will explore techniques for deploying ML-based web applications and training models with TensorFlow Core. Throughout this ML book, you'll discover useful tips and tricks that will build on your knowledge. By the end of this book, you will be equipped with the skills you need to create your own web-based ML applications and fine-tune models to achieve high performance. What you will learn Use the t-SNE algorithm in TensorFlow.js to reduce dimensions in an input dataset Deploy tfjs-converter to convert Keras models and load them into TensorFlow.js Apply the Bellman equation to solve MDP problems Use the k-means algorithm in TensorFlow.js to visualize prediction results Create tf.js packages with Parcel, Webpack, and Rollup to deploy web apps Implement tf.js backend frameworks to tune and accelerate app performance Who this book is for This book is for web developers who want to learn how to integrate machine learning techniques with web-based applications from scratch. This book will also appeal to data scientists, machine learning practitioners, and deep learning enthusiasts who are looking to perform accelerated, browser-based machine learning on Web using TensorFlow.js. Working knowledge of JavaScript programming language is all you need to get started.

Hands-On Machine Learning for Cybersecurity-Soma Halder 2018-12-31 Get into the world of smart data security using machine learning algorithms and Python libraries Key Features Learn machine learning algorithms and cybersecurity fundamentals Automate your daily workflow by applying use cases to many facets of security Implement smart machine learning solutions to detect various cybersecurity problems Book Description Cyber threats today are one of the costliest losses that an organization can face. In this book, we use the most efficient tool to solve the big problems that exist in the cybersecurity domain. The book begins by giving you the basics of ML in cybersecurity using Python and its libraries. You will explore various ML domains (such as time series analysis and ensemble modeling) to get your foundations right. You will implement various examples such as building system to identify malicious URLs, and building a program to detect fraudulent emails and spam. Later, you will learn how to make effective use of K-means algorithm to develop a solution to detect and alert you to any malicious activity in the network. Also learn how to implement biometrics and fingerprint to validate whether the user is a legitimate user or not. Finally, you will see how we change the game with TensorFlow and learn how deep learning is effective for creating models and training systems What you will learn Use machine learning algorithms with complex datasets to implement cybersecurity concepts Implement machine learning algorithms such as clustering, k-means, and Naive Bayes to solve real-world problems Learn to speed up a system using Python libraries with NumPy, Scikit-learn, and CUDA Understand how to combat malware, detect spam, and fight financial fraud to mitigate cyber crimes Use TensorFlow in the cybersecurity domain and implement real-world examples Learn how machine learning and Python can be used in complex cyber issues Who this book is for This book is for the data scientists, machine learning developers, security researchers, and anyone keen to apply machine learning to up-skill computer security. Having some working knowledge of Python and being familiar with the basics of machine learning and cybersecurity fundamentals will help to get the most out of the book

Hands-On Deep Learning with TensorFlow-Dan Van Boxel 2017-07-31 This book is your guide to exploring the possibilities in the field of deep learning, making use of Google's TensorFlow. You will learn about convolutional neural networks, and logistic regression while training models for deep learning to gain key insights into your data. About This Book Explore various possibilities with deep learning and gain amazing insights from data using Google's brainchild-- TensorFlow Want to learn what more can be done with deep learning? Explore various neural networks with the help of this comprehensive guide Rich in concepts, advanced guide on deep learning that will give you background to innovate in your environment Who This Book Is For If you are a data scientist who performs machine learning on a regular basis, are familiar with deep neural networks, and now want to gain expertise in working with convoluted neural networks, then this book is for you. Some familiarity with C++ or Python is assumed. What You Will Learn Set up your computing environment and install TensorFlow Build simple TensorFlow graphs for everyday computations Apply logistic regression for classification with TensorFlow Design and train a multilayer neural network with TensorFlow Intuitively understand convolutional neural networks for image recognition Bootstrap a neural network from simple to more accurate models See how to use TensorFlow with other types of networks Program networks with SciKit-Flow, a high-level interface to TensorFlow In Detail Dan Van Boxel's Deep Learning with TensorFlow is based on Dan's best-selling TensorFlow video course. With deep learning going mainstream, making sense of data and getting accurate results using deep networks is possible. Dan Van Boxel will be your guide to exploring the possibilities with deep learning; he will enable you to understand data like never before. With the efficiency and simplicity of TensorFlow, you will be able to process your data and gain insights that will change how you look at data. With Dan's guidance, you will dig deeper into the hidden layers of abstraction using raw data. Dan then shows you various complex algorithms for deep learning and various examples that use these deep neural networks. You will also learn how to train your machine to craft new features to make sense of deeper layers of data. In this book, Dan shares his knowledge across topics such as logistic regression, convolutional neural networks, recurrent neural networks, training deep networks, and high level interfaces. With the help of novel practical examples, you will become an ace at advanced multilayer networks, image recognition, and beyond. Style and Approach This book is your go-to guide to becoming a deep learning expert in your organization. Dan helps you evaluate common and not-so-common deep neural networks with the help of insightful examples that you can relate to, and show how they can be exploited in the real world with complex raw data.

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

Pro Machine Learning Algorithms-V Kishore Ayyadevara 2018-06-30 Bridge the gap between a high-level understanding of how an algorithm works and knowing the nuts and bolts to tune your models better. This book will give you the confidence and skills when developing all the major machine learning models. In Pro Machine Learning Algorithms, you will first develop the algorithm in Excel so that you get a practical understanding of all the levers that can be tuned in a model, before implementing the models in Python/R. You will cover all the major algorithms: supervised and unsupervised learning, which include linear/logistic regression; k-means clustering; PCA; recommender system; decision tree; random forest; GBM; and neural networks. You will also be exposed to the latest in deep learning through CNNs, RNNs, and word2vec for text mining. You will be learning not only the algorithms, but also the concepts of feature engineering to maximize the performance of a model. You will see the theory along with case studies, such as sentiment classification, fraud detection, recommender systems, and image recognition, so that you get the best of both theory and practice for the vast majority of the machine learning algorithms used in industry. Along with learning the algorithms, you will also be exposed to running machine-learning models on all the major cloud service providers. You are expected to have minimal knowledge of statistics/software programming and by the end of this book you should be able to work on a machine learning project with confidence. What You Will Learn Get an in-depth understanding of all the major machine learning and deep learning algorithms Fully appreciate the pitfalls to avoid while building models Implement machine learning algorithms in the cloud Follow a hands-on approach through case studies for each algorithm Gain the tricks of ensemble learning to build more accurate models Discover the basics of programming in R/Python and the Keras framework for deep learning Who This Book Is For Business analysts/ IT professionals who want to transition into data science roles. Data scientists who want to solidify their knowledge in machine learning.

Hands-On Machine Learning with Azure-Thomas K. Abraham 2018-10-31 Implement machine learning, cognitive services, and artificial intelligence solutions by leveraging Azure cloud technologies Key Features Learn advanced concepts in Azure ML and the Cortana Intelligence Suite architecture Explore ML Server using SQL Server and HDInsight capabilities Implement various tools in Azure to build and deploy machine learning models Book Description Implementing Machine learning (ML) and Artificial Intelligence (AI) in the cloud had not been possible earlier due to the lack of processing power and storage. However, Azure has created ML and AI services that are easy to implement in the cloud. In Hands-On Machine Learning with Azure teaches you how to perform advanced ML projects in the cloud in a cost-effective way. The book begins by covering the benefits of ML and AI in the cloud. You will then explore Microsoft's Team Data Science Process to establish a repeatable process for successful AI development and implementation. You will also gain an understanding of AI technologies available in Azure and the Cognitive Services APIs to integrate them into bot applications. This book lets you explore prebuilt templates with Azure Machine Learning Studio and build a model using canned algorithms that can be deployed as web services. The book then takes you through a preconfigured series of virtual machines in Azure targeted at AI development scenarios. You will get to grips with the ML Server and its capabilities in SQL and HDInsight. In the concluding chapters, you'll integrate patterns with other non-AI services in Azure. By the end of this book, you will be fully equipped to implement smart cognitive actions in your models. What you will learn Discover the benefits of leveraging the cloud for ML and AI Use Cognitive Services APIs to build intelligent bots Build a model using canned algorithms from Microsoft and deploy it as a web service Deploy virtual machines in AI development scenarios Apply R, Python, SQL Server, and Spark in Azure Build and deploy deep learning solutions with CNTK, MMLSpark, and TensorFlow Implement model retraining in IoT, Streaming, and Blockchain solutions Explore best practices for integrating ML and AI functions with ADLA and logic apps Who this book is for If you are a data scientist or developer familiar with Azure ML and cognitive services and want to create smart models and make sense of data in the cloud, this book is for you. You'll also find this book useful if you want to bring powerful machine learning services into your cloud applications. Some experience with data manipulation and processing, using languages like SQL, Python, and R, will aid in understanding the concepts covered in this book

Hands-On Machine Learning with ML.NET-Jarred Capellman 2020-03-27 Create, train, and evaluate various machine learning models such as regression, classification, and clustering using ML.NET, Entity Framework, and ASP.NET Core Key Features Get well-versed with the ML.NET framework and its components and APIs using practical examples Learn how to build, train, and evaluate popular machine learning algorithms with ML.NET offerings Extend your existing machine learning models by integrating with TensorFlow and other libraries Book Description Machine learning (ML) is widely used in many industries such as science, healthcare, and research and its popularity is only growing. In March 2018, Microsoft introduced ML.NET to help .NET enthusiasts in working with ML. With this book, you'll explore how to build ML.NET applications with the various ML models available using C# code. The book starts by giving you an overview of ML and the types of ML algorithms used, along with covering what ML.NET is and why you need it to build ML apps. You'll then explore the ML.NET framework, its components, and APIs. The book will serve as a practical guide to helping you build smart apps using the ML.NET library. You'll gradually become well versed in how to implement ML algorithms such as regression, classification, and clustering with real-world examples and datasets. Each chapter will cover the practical implementation, showing you how to implement ML within .NET applications. You'll also learn to integrate TensorFlow in ML.NET applications. Later you'll discover how to store the regression model housing price prediction result to the database and display the real-time predicted results from the database on your web application using ASP.NET Core Blazor and SignalR. By the end of this book, you'll have learned how to confidently perform basic to advanced-level machine learning tasks in ML.NET. What you will learn Understand the framework, components, and APIs of ML.NET using C# Develop regression models using ML.NET for employee attrition and file classification Evaluate classification models for sentiment prediction of restaurant reviews Work with clustering models for file type classifications Use anomaly detection to find anomalies in both network traffic and login history Work with ASP.NET Core Blazor to create an ML.NET enabled web application Integrate pre-trained TensorFlow and ONNX models in a WPF ML.NET application for image classification and object detection Who this book is for If you are a .NET developer who wants to implement machine learning models using ML.NET, then this book is for you. This book will also be beneficial for data scientists and machine learning developers who are looking for effective tools to implement various machine learning algorithms. A basic understanding of C# or .NET is mandatory to grasp the concepts covered in this book effectively.

Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow, 2nd Edition-Aurélien Géron 2019 Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows you how. By using concrete examples, minimal theory, and two production-ready Python frameworks-Scikit-Learn and TensorFlow-author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use Scikit-Learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets.

Hands-On Deep Learning with R-Michael Pawlus 2020-04-24 Explore and implement deep learning to solve various real-world problems using modern R libraries such as TensorFlow, MXNet, H2O, and Deepnet Key Features Understand deep learning algorithms and architectures using R and determine which algorithm is best suited for a specific problem Improve models using parameter tuning, feature engineering, and ensembling Apply advanced neural network models such as deep autoencoders and generative adversarial networks (GANs) across different domains Book Description Deep learning enables efficient and accurate learning from a massive amount of data. This book will help you overcome a number of challenges using various deep learning algorithms and architectures with R programming. This book starts with a brief overview of machine learning and deep learning and how to build your first neural network. You'll understand the architecture of various deep learning algorithms and their applicable fields, learn how to build deep learning models, optimize hyperparameters, and evaluate model performance. Various deep learning applications in image processing, natural language processing (NLP), recommendation systems, and predictive analytics will also be covered. Later chapters will show you how to tackle recognition problems such as image recognition and signal detection, programmatically summarize documents, conduct topic modeling, and forecast stock market prices. Toward the end of the book, you will learn the common applications of GANs and how to build a face generation model using them. Finally, you'll get to grips with using reinforcement learning and deep reinforcement learning to solve various real-world problems. By the end of this deep learning book, you will be able to build and deploy your own deep learning applications using appropriate frameworks and algorithms. What you will learn Design a feedforward neural network to see how the activation function computes an output Create an image recognition model using convolutional neural networks (CNNs) Prepare data, decide hidden layers and neurons and train your model with the backpropagation algorithm Apply text cleaning techniques to remove uninformative text using NLP Build, train, and evaluate a GAN model for face generation Understand the concept and implementation of reinforcement learning in R Who this book is for This book is for data scientists, machine learning engineers, and deep learning developers who are familiar with machine learning and are looking to enhance their knowledge of deep learning using practical examples. Anyone interested in increasing the efficiency of their machine learning applications and exploring various options in R will also find this book useful. Basic knowledge of machine learning techniques and working knowledge of the R programming language is expected.

Hands-On Machine Learning with ML. NET-Jarred Capellman 2020-03-27 Create, train, and evaluate various machine learning models such as regression, classification, and clustering using ML.NET, Entity Framework, and ASP.NET Core Key Features Get well-versed with the ML.NET framework and its components and APIs using practical examples Learn how to build, train, and evaluate popular machine learning algorithms with ML.NET offerings Extend your existing machine learning models by integrating with TensorFlow and other libraries Book Description Machine learning (ML) is widely used in many industries such as science, healthcare, and research and its popularity is only growing. In March 2018, Microsoft introduced ML.NET to help .NET enthusiasts in working with ML. With this book, you'll explore how to build ML.NET applications with the various ML models available using C# code. The book starts by giving you an overview of ML and the types of ML algorithms used, along with covering what ML.NET is and why you need it to build ML apps. You'll then explore the ML.NET framework, its components, and APIs. The book will serve as a practical guide to helping you build smart apps using the ML.NET library. You'll gradually become well versed in how to implement ML algorithms such as regression, classification, and clustering with real-world examples and datasets. Each chapter will cover the practical implementation, showing you how to implement ML within .NET applications. You'll also learn to integrate TensorFlow in ML.NET applications. Later you'll discover how to store the regression model housing price prediction result to the database and display the real-time predicted results from the database on your web application using ASP.NET Core Blazor and SignalR. By the end of this book, you'll have learned how to confidently perform basic to advanced-level machine learning tasks in ML.NET. What you will learn Understand the framework, components, and APIs of ML.NET using C# Develop regression models using ML.NET for

employee attrition and file classification Evaluate classification models for sentiment prediction of restaurant reviews Work with clustering models for file type classifications Use anomaly detection to find anomalies in both network traffic and login history Work with ASP.NET Core Blazor to create an ML.NET enabled web application Integrate pre-trained TensorFlow and ONNX models in a WPF ML.NET application for image classification and object detection Who this book is for If you are a .NET developer who wants to implement machine learning models using ML.NET, then this book is for you. This book will also be beneficial for data scientists and machine learning developers who are looking for effective tools to implement various machine learning algorithms. A basic understanding of C# or .NET is mandatory to grasp the concepts covered in this book effectively

Hands-On Deep Learning for Images with TensorFlow-Will Ballard 2018-07-31 Explore TensorFlow's capabilities to perform efficient deep learning on images Key Features Discover image processing for machine vision Build an effective image classification system using the power of CNNs Leverage TensorFlow's capabilities to perform efficient deep learning Book Description TensorFlow is Google's popular offering for machine learning and deep learning, quickly becoming a favorite tool for performing fast, efficient, and accurate deep learning tasks. Hands-On Deep Learning for Images with TensorFlow shows you the practical implementations of real-world projects, teaching you how to leverage TensorFlow's capabilities to perform efficient image processing using the power of deep learning. With the help of this book, you will get to grips with the different paradigms of performing deep learning such as deep neural nets and convolutional neural networks, followed by understanding how they can be implemented using TensorFlow. By the end of this book, you will have mastered all the concepts of deep learning and their implementation with TensorFlow and Keras. What you will learn Build machine learning models particularly focused on the MNIST digits Work with Docker and Keras to build an image classifier Understand natural language models to process text and images Prepare your dataset for machine learning Create classical, convolutional, and deep neural networks Create a RESTful image classification server Who this book is for Hands-On Deep Learning for Images with TensorFlow is for you if you are an application developer, data scientist, or machine learning practitioner looking to integrate machine learning into application software and master deep learning by implementing practical projects in TensorFlow. Knowledge of Python programming and basics of deep learning are required to get the best out of this book.

Hands-On Machine Learning with Microsoft Excel 2019-Julio Cesar Rodriguez Martino 2019-04-30 A practical guide to getting the most out of Excel, using it for data preparation, applying machine learning models (including cloud services) and understanding the outcome of the data analysis. Key Features Use Microsoft's product Excel to build advanced forecasting models using varied examples Cover range of machine learning tasks such as data mining, data analytics, smart visualization, and more Derive data-driven techniques using Excel plugins and APIs without much code required Book Description We have made huge progress in teaching computers to perform difficult tasks, especially those that are repetitive and time-consuming for humans. Excel users, of all levels, can feel left behind by this innovation wave. The truth is that a large amount of the work needed to develop and use a machine learning model can be done in Excel. The book starts by giving a general introduction to machine learning, making every concept clear and understandable. Then, it shows every step of a machine learning project, from data collection, reading from different data sources, developing models, and visualizing the results using Excel features and offerings. In every chapter, there are several examples and hands-on exercises that will show the reader how to combine Excel functions, add-ins, and connections to databases and to cloud services to reach the desired goal: building a full data analysis flow. Different machine learning models are shown, tailored to the type of data to be analyzed. At the end of the book, the reader is presented with some advanced use cases using Automated Machine Learning, and artificial neural network, which simplifies the analysis task and represents the future of machine learning. What you will learn Use Excel to preview and cleanse datasets Understand correlations between variables and optimize the input to machine learning models Use and evaluate different machine learning models from Excel Understand the use of different visualizations Learn the basic concepts and calculations to understand how artificial neural networks work Learn how to connect Excel to the Microsoft Azure cloud Get beyond proof of concepts and build fully functional data analysis flows Who this book is for This book is for data analysis, machine learning enthusiasts, project managers, and someone who doesn't want to code much for performing core tasks of machine learning. Each example will help you perform end-to-end smart analytics. Working knowledge of Excel is required.

Hands-On Machine Learning with Microsoft Excel 2019-Julio Cesar Rodriguez Martino 2019-04-30 A practical guide to getting the most out of Excel, using it for data preparation, applying machine learning models (including cloud services) and understanding the outcome of the data analysis. Key Features Use Microsoft's product Excel to build advanced forecasting models using varied examples Cover range of machine learning tasks such as data mining, data analytics, smart visualization, and more Derive data-driven techniques using Excel plugins and APIs without much code required Book Description We have made huge progress in teaching computers to perform difficult tasks, especially those that are repetitive and time-consuming for humans. Excel users, of all levels, can feel left behind by this innovation wave. The truth is that a large amount of the work needed to develop and use a machine learning model can be done in Excel. The book starts by giving a general introduction to machine learning, making every concept clear and understandable. Then, it shows every step of a machine learning project, from data collection, reading from different data sources, developing models, and visualizing the results using Excel features and offerings. In every chapter, there are several examples and hands-on exercises that will show the reader how to combine Excel functions, add-ins, and connections to databases and to cloud services to reach the desired goal: building a full data analysis flow. Different machine learning models are shown, tailored to the type of data to be analyzed. At the end of the book, the reader is presented with some advanced use cases using Automated Machine Learning, and artificial neural network, which simplifies the analysis task and represents the future of machine learning. What you will learn Use Excel to preview and cleanse datasets Understand correlations between variables and optimize the input to machine learning models Use and evaluate different machine learning models from Excel Understand the use of different visualizations Learn the basic concepts and calculations to understand how artificial neural networks work Learn how to connect Excel to the Microsoft Azure cloud Get beyond proof of concepts and build fully functional data analysis flows Who this book is for This book is for data analysis, machine learning enthusiasts, project managers, and someone who doesn't want to code much for performing core tasks of machine learning. Each example will help you perform end-to-end smart analytics. Working knowledge of Excel is required.

Hands-On Automated Machine Learning-Sibanjan Das 2018-04-26 Automate data and model pipelines for faster machine learning applications Key Features Build automated modules for different machine learning components Understand each component of a machine learning pipeline in depth Learn to use different open source AutoML and feature engineering platforms Book Description AutoML is designed to automate parts of Machine Learning. Readily available AutoML tools are making data science practitioners' work easy and are received well in the advanced analytics community. Automated Machine Learning covers the necessary foundation needed to create automated machine learning modules and helps you get up to speed with them in the most practical way possible. In this book, you'll learn how to automate different tasks in the machine learning pipeline such as data preprocessing, feature selection, model training, model optimization, and much more. In addition to this, it demonstrates how you can use the available automation libraries, such as auto-sklearn and MLBox, and create and extend your own custom AutoML components for Machine Learning. By the end of this book, you will have a clearer understanding of the different aspects of automated Machine Learning, and you'll be able to incorporate automation tasks using practical datasets. You can leverage your learning from this book to implement Machine Learning in your projects and get a step closer to winning various machine learning competitions. What you will learn Understand the fundamentals of Automated Machine Learning systems Explore auto-sklearn and MLBox for AutoML tasks Automate your preprocessing methods along with feature transformation Enhance feature selection and generation using the Python stack Assemble individual components of ML into a complete AutoML framework Demystify hyperparameter tuning to optimize your ML models Dive into Machine Learning concepts such as neural networks and autoencoders Understand the information costs and trade-offs associated with AutoML Who this book is for If you're a budding data scientist, data analyst, or Machine Learning enthusiast and are new to the concept of automated machine learning, this book is ideal for you. You'll also find this book useful if you're an ML engineer or data professional interested in developing quick machine learning pipelines for your projects. Prior exposure to Python programming will help you get the best out of this book.

Hands-On Deep Learning with Go-Gareth Seneque 2019-08-08 Apply modern deep learning techniques to build and train deep neural networks using Gorgonia Key Features Gain a practical understanding of deep learning using Golang Build complex neural network models using Go libraries and Gorgonia Take your deep learning model from design to deployment with this handy guide Book Description Go is an open source programming language designed by Google for handling large-scale projects efficiently. The Go ecosystem comprises some really powerful deep learning tools such as DQN and CUDA. With this book, you'll be able to use these tools to train and deploy scalable deep learning models from scratch. This deep learning book begins by introducing you to a variety of tools and libraries available in Go. It then takes you through building neural networks, including activation functions and the learning algorithms that make neural networks tick. In addition to this, you'll learn how to build advanced architectures such as autoencoders, restricted Boltzmann machines (RBMs), convolutional neural networks (CNNs), recurrent neural networks (RNNs), and more. You'll also understand how you can scale model deployments on the AWS cloud infrastructure for training and inference. By the end of this book, you'll

have mastered the art of building, training, and deploying deep learning models in Go to solve real-world problems. What you will learn Explore the Go ecosystem of libraries and communities for deep learning Get to grips with Neural Networks, their history, and how they work Design and implement Deep Neural Networks in Go Get a strong foundation of concepts such as Backpropagation and Momentum Build Variational Autoencoders and Restricted Boltzmann Machines using Go Build models with CUDA and benchmark CPU and GPU models Who this book is for This book is for data scientists, machine learning engineers, and AI developers who want to build state-of-the-art deep learning models using Go. Familiarity with basic machine learning concepts and Go programming is required to get the best out of this book.

Hands-On Machine Learning on Google Cloud Platform-Alexis Perrier 2018-04-27 Unleash Google's Cloud Platform to build, train and optimize machine learning models Key Features Get well versed in GCP pre-existing services to build your own smart models A comprehensive guide covering aspects from data processing, analyzing to building and training ML models A practical approach to produce your trained ML models and port them to your mobile for easy access Book Description Google Cloud Machine Learning Engine combines the services of Google Cloud Platform with the power and flexibility of TensorFlow. With this book, you will not only learn to build and train different complexities of machine learning models at scale but also host them in the cloud to make predictions. This book is focused on making the most of the Google Machine Learning Platform for large datasets and complex problems. You will learn from scratch how to create powerful machine learning based applications for a wide variety of problems by leveraging different data services from the Google Cloud Platform. Applications include NLP, Speech to text, Reinforcement learning, Time series, recommender systems, image classification, video content inference and many other. We will implement a wide variety of deep learning use cases and also make extensive use of data related services comprising the Google Cloud Platform ecosystem such as Firebase, Storage APIs, Datalab and so forth. This will enable you to integrate Machine Learning and data processing features into your web and mobile applications. By the end of this book, you will know the main difficulties that you may encounter and get appropriate strategies to overcome these difficulties and build efficient systems. What you will learn Use Google Cloud Platform to build data-based applications for dashboards, web, and mobile Create, train and optimize deep learning models for various data science problems on big data Learn how to leverage BigQuery to explore big datasets Use Google's pre-trained TensorFlow models for NLP, image, video and much more Create models and architectures for Time series, Reinforcement Learning, and generative models Create, evaluate, and optimize TensorFlow and Keras models for a wide range of applications Who this book is for This book is for data scientists, machine learning developers and AI developers who want to learn Google Cloud Platform services to build machine learning applications. Since the interaction with the Google ML platform is mostly done via the command line, the reader is supposed to have some familiarity with the bash shell and Python scripting. Some understanding of machine learning and data science concepts will be handy

Hands-On Data Science and Python Machine Learning-Frank Kane 2017-07-31 This book covers the fundamentals of machine learning with Python in a concise and dynamic manner. It covers data mining and large-scale machine learning using Apache Spark. About This Book Take your first steps in the world of data science by understanding the tools and techniques of data analysis Train efficient Machine Learning models in Python using the supervised and unsupervised learning methods Learn how to use Apache Spark for processing Big Data efficiently Who This Book Is For If you are a budding data scientist or a data analyst who wants to analyze and gain actionable insights from data using Python, this book is for you. Programmers with some experience in Python who want to enter the lucrative world of Data Science will also find this book to be very useful, but you don't need to be an expert Python coder or mathematician to get the most from this book. What You Will Learn Learn how to clean your data and ready it for analysis Implement the popular clustering and regression methods in Python Train efficient machine learning models using decision trees and random forests Visualize the results of your analysis using Python's Matplotlib library Use Apache Spark's MLlib package to perform machine learning on large datasets In Detail Join Frank Kane, who worked on Amazon and IMDb's machine learning algorithms, as he guides you on your first steps into the world of data science. Hands-On Data Science and Python Machine Learning gives you the tools that you need to understand and explore the core topics in the field, and the confidence and practice to build and analyze your own machine learning models. With the help of interesting and easy-to-follow practical examples, Frank Kane explains potentially complex topics such as Bayesian methods and K-means clustering in a way that anybody can understand them. Based on Frank's successful data science course, Hands-On Data Science and Python Machine Learning empowers you to conduct data analysis and perform efficient machine learning using Python. Let Frank help you unearth the value in your data using the various data mining and data analysis techniques available in Python, and to develop efficient predictive models to predict future results. You will also learn how to perform large-scale machine learning on Big Data using Apache Spark. The book covers preparing your data for analysis, training machine learning models, and visualizing the final data analysis. Style and approach This comprehensive book is a perfect blend of theory and hands-on code examples in Python which can be used for your reference at any time.

Hands on Machine Learning with Python-John Anderson 2018-08-06 ***** BUY NOW (will soon return to 24.77 $***** MONEY BACK GUARANTEE BY AMAZON (See Below FAQ) *****Are you thinking of learning more about Machine Learning using Python? (For Beginners)This book is for you. It would seek to explain you all need to know about machine learning and its application using Python in an intuitive way. 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. Target UsersThe 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? Overview of Python Programming Language Statistics Probability The Data Science Process Machine Learning Supervised Learning Algorithms Unsupervised Learning Algorithms Semi-supervised Learning Algorithms Reinforcement Learning Algorithms Overfitting and Underfitting Python Data Science Tools Jupyter Notebook Numerical Python (Numpy) Pandas Scientific Python (Scipy) Matplotlib Scikit-Learn K-Nearest Neighbors Naive Bayes Simple and Multiple Linear Regression Logistic Regression Generalized Linear Models Decision Trees and Random Forest Neural Networks Perceptrons Backpropagation Clustering K-means with Scikit-Learn Bottom-up Hierarchical Clustering K-means Clustering Network Analysis Betweenness centrality Eigenvector Centrality Recommender Systems Multi-Class Classification Popular Classification Algorithms Support Vector Machine Deep Learning using TensorFlow Deep Learning Case Studies 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 doesn't fit for me?A: Yes, Amazon refund you if you aren't satisfied, for more information about the refund service please go to the amazon help platform. We will also be happy to help you if you send us an email (email address inside the book).***** MONEY BACK GUARANTEE BY AMAZON ***** Editorial Reviews"This book succeeds in covering most important techniques in a clear, intuitive way that is perfect for newbies and those seeking to improve their practice in the Machine LearningFields VERY QUICKLY ." --Adrian B. Machine Learning Researcher Consulting AI company

Hands-On Machine Learning on Google Cloud Platform-Giuseppe Ciaburro 2018-04-30 In this book, you will learn how to create powerful machine learning based applications for a wide variety of problems leveraging different data services from the Google Cloud Platform. Finally, you will know the main difficulties that you may encounter and get appropriate strategies to overcome these difficulties and build efficient systems.

Hands-On Machine Learning with C#-Matt R. Cole 2018-05-25 Explore supervised and unsupervised learning techniques and add smart features to your applications Key Features Leverage machine learning techniques to build real-world applications Use the Accord.NET machine learning framework for reinforcement learning Implement machine learning techniques using Accord, nuML, and Encog Book Description The necessity for machine learning is everywhere, and most production enterprise applications are written in C# using tools such as Visual Studio, SQL Server, and Microsoft Azur2e. Hands-On Machine Learning with C# uniquely blends together an understanding of various machine learning concepts, techniques of machine learning, and various available machine learning tools through which users can add intelligent features.These tools include image and motion detection, Bayes intuition, and deep learning, to C# .NET applications. Using this book, you will learn to implement supervised and unsupervised learning algorithms and will be better equipped to create excellent predictive models. In addition, you will learn both supervised and unsupervised forms of regression, mainly logistic and linear regression, in depth. Next, you will use the nuML machine learning framework to learn how to create a simple decision tree. In the concluding chapters, you will use the Accord.Net machine learning framework to learn sequence recognition of handwritten numbers using dynamic time warping. We will also cover advanced concepts such as artificial neural networks, autoencoders, and reinforcement learning. By the end of this book, you will have developed a machine learning mindset and will be able to leverage C# tools, techniques,

and packages to build smart, predictive, and real-world business applications. What you will learn Learn to parameterize a probabilistic problem Use Naive Bayes to visually plot and analyze data Plot a text-based representation of a decision tree using nuML Use the Accord.NET machine learning framework for associative rule-based learning Develop machine learning algorithms utilizing fuzzy logic Explore support vector machines for image recognition Understand dynamic time warping for sequence recognition Who this book is for Hands-On Machine Learning with C#is forC# .NETdevelopers who work on a range of platforms from .NET and Windows to mobile devices. Basic knowledge of statistics is required.

Hands-On Reinforcement Learning with Python-Sudharsan Ravichandiran 2018-06-28 Reinforcement learning is a self-evolving type of machine learning that takes us closer to achieving true artificial intelligence. This easy-to-follow guide explains everything from scratch using rich examples written in Python.

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. 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. 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

Machine Learning with Python-Travis Booth 2019-05-27 A True Beginner's Guide to Machine Learning with Python! This guide contains everyting you need to get started with Python and start solving machine learning chllenges. Within this book are 37 illuminating, self contained chapters which will teach you everything from installing Python to some special tricks! Along the way you will also learn about: Error and Exception Handling Loops User Defined Functions Lists and Tuples PyPi An Introduction to Using Python for Games and Hacking Metaclasses and much much more! You will find easy to copy and paste recipes which will get you up and running in no time! So go ahead and get your copy now! PS- Order the paperback and get the ebook absolutely free with Kindle Matchbook!

Hands-On Deep Learning for Games-Micheal Lanham 2019-03-30 Understand the core concepts of deep learning and deep reinforcement learning by applying them to develop games Key Features Apply the power of deep learning to complex reasoning tasks by building a Game AI Exploit the most recent developments in machine learning and AI for building smart games Implement deep learning models and neural networks with Python Book Description The number of applications of deep learning and neural networks has multiplied in the last couple of years. Neural nets has enabled significant breakthroughs in everything from computer vision, voice generation, voice recognition and self-driving cars. Game development is also a key area where these techniques are being applied. This book will give an in depth view of the potential of deep learning and neural networks in game development. We will take a look at the foundations of multi-layer perceptron's to using convolutional and recurrent networks. In applications from GANs that create music or textures to self-driving cars and chatbots. Then we introduce deep reinforcement learning through the multi-armed bandit problem and other OpenAI Gym environments. As we progress through the book we will gain insights about DRL techniques such as Motivated Reinforcement Learning with Curiosity and Curriculum Learning. We also take a closer look at deep reinforcement learning and in particular the Unity ML-Agents toolkit. By the end of the book, we will look at how to apply DRL and the ML-Agents toolkit to enhance, test and automate your games or simulations. Finally, we will cover your possible next steps and possible areas for future learning. What you will learn Learn the foundations of neural networks and deep learning. Use advanced neural network architectures in applications to create music, textures, self driving cars and chatbots. Understand the basics of reinforcement and DRL and how to apply it to solve a variety of problems. Working with Unity ML-Agents toolkit and how to install, setup and run the kit. Understand core concepts of DRL and the differences between discrete and continuous action environments. Use several advanced forms of learning in various scenarios from developing agents to testing games. Who this book is for This books is for game developers who wish to create highly interactive games by leveraging the power of machine and deep learning. No prior knowledge of machine learning, deep learning or neural networks is required this book will teach those concepts from scratch. A good understanding of Python is required.

Hands-On Artificial Intelligence with TensorFlow-Amir Ziai 2018-10-31 Book Description Artificial Intelligence (AI) is a popular area with an emphasis on creating intelligent machines that can reason, evaluate, and understand the same way as humans. It is used extensively across many fields, such as image recognition, robotics, language processing, healthcare, finance, and more. Hands-On Artificial Intelligence with TensorFlow gives you a rundown of essential AI concepts and their implementation with TensorFlow, also highlighting different approaches to solving AI problems using machine learning and deep learning techniques. In addition to this, the book covers advanced concepts, such as reinforcement learning, generative adversarial networks (GANs), and multimodal learning. Once you have grasped all this, you'll move on to exploring GPU computing and neuromorphic computing, along with the latest trends in quantum computing. You'll work through case studies that will help you examine AI applications in the important areas of computer vision, healthcare, and FinTech, and analyze their datasets. In the concluding chapters, you'll briefly investigate possible developments in AI that we can expect to see in the future. By the end of this book, you will be well-versed with the essential concepts of AI and their implementation using TensorFlow. What you will learn Explore the core concepts of AI and its different approaches Use the TensorFlow framework for smart applications Implement various machine and deep learning algorithms with TensorFlow Design self-learning RL systems and implement generative models Perform GPU computing efficiently using best practices Build enterprise-grade apps for computer vision, NLP, and healthcare Who this book is for This book is for you if you are a machine learning developer, data scientist, AI researcher, or anyone who wants to build artificial intelligence applications using TensorFlow. You need to have some working knowledge of machine learning to get the most out of this book.

Hands-On Reinforcement Learning with R-Giuseppe Ciaburro 2019-12-17 Implement key reinforcement learning algorithms and techniques using different R packages such as the Markov chain, MDP toolbox, contextual, and OpenAI Gym Key Features Explore the design principles of reinforcement learning and deep reinforcement learning models Use dynamic programming to solve design issues related to building a self-learning system Learn how to systematically implement reinforcement learning algorithms Book Description Reinforcement learning (RL) is an integral part of machine learning (ML), and is used to train algorithms. With this book, you'll learn how to implement reinforcement learning with R, exploring practical examples such as using tabular Q-learning to control robots. You'll begin by learning the basic RL concepts, covering the agent-environment interface, Markov Decision Processes (MDPs), and policy gradient methods. You'll then use R's libraries to develop a model based on Markov chains. You will also learn how to solve a multi-armed bandit problem using various R packages. By applying dynamic programming and Monte Carlo methods, you will also find the best policy to make predictions. As you progress, you'll use Temporal Difference (TD) learning for vehicle routing problem applications. Gradually, you'll apply the concepts you've learned to real-world problems, including fraud detection in finance, and TD learning for planning activities in the healthcare sector. You'll explore deep reinforcement learning using Keras, which uses the power of neural networks to increase RL's potential. Finally, you'll discover the scope of RL and explore the challenges in building and deploying machine learning models. By the end of this book, you'll be well-versed with RL and have the skills you need to efficiently implement it with R. What you will learn Understand how to use MDP to manage complex scenarios Solve classic reinforcement learning problems such as the multi-armed bandit model Use dynamic programming for optimal policy searching Adopt Monte Carlo methods for prediction Apply TD learning to search for the best path Use tabular Q-learning to control robots Handle environments using the OpenAI library to simulate real-world applications Develop deep Q-learning algorithms to improve model performance Who this book is for This book is for anyone who wants to learn about reinforcement learning with R from scratch. A solid understanding of R and basic knowledge of machine learning are necessary to grasp the topics covered in the book.

PyTorch Deep Learning Hands-On-Sherin Thomas 2019-04-26 All the key deep learning methods built step-by-step in PyTorch Key Features Understand the internals and principles of PyTorch Implement key deep learning methods in PyTorch: CNNs, GANs, RNNs, reinforcement learning, and more Build deep learning workflows and take deep learning models from prototyping to production Book Description PyTorch is a new, lightweight, and Python-first tool for deep learning. Built by Facebook to offer flexibility and speed, it has quickly become the preferred tool for deep learning experts. PyTorch helps you release deep learning models faster than ever before. PyTorch Deep Learning Hands-On shows how to implement every major deep learning architecture in PyTorch. Starting with simple neural networks, it covers PyTorch for computer vision (CNN), natural language processing (RNN), GANs, and reinforcement learning. You will also build deep learning workflows with the PyTorch framework, migrate models built in Python to highly efficient TorchScript, and deploy to production using the most sophisticated available tools. Each chapter focuses on a different area of deep learning. Chapters start with a refresher on the core principles, before sharing the code you need to implement them in PyTorch. If you want to become a deep learning expert this book is for you. What you will learn Use PyTorch to build: Simple Neural Networks - build neural networks the PyTorch way, with high-level functions, optimizers, and more Convolutional Neural Networks - create advanced computer vision systems Recurrent Neural Networks - work with sequential data such as natural language and audio Generative Adversarial Networks - create new content with models including SimpleGAN and CycleGAN Reinforcement Learning - develop systems that can solve complex problems such as driving or game playing Deep Learning workflows - move effectively from ideation to production with proper deep learning workflow using PyTorch and its utility packages Production-ready models - package your models for high-performance production environments Who this book is for Machine learning professionals and enthusiasts who know Python and want to build efficient and powerful deep learning systems in PyTorch.