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Hands On Machine Learning With Scikit Learn And Tensorflow Concepts Tools And Techniques For Building Intelligent Systems

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

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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. 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

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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

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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.

Discover the practical aspects of implementing deep-learning solutions using the rich Python ecosystem. This book bridges the gap between the academic state-of-the-art and the industry state-of-the-practice by introducing you to deep learning frameworks such as Keras, Theano, and Caffe. The practicalities of these frameworks is often acquired by practitioners by reading source code, manuals, and posting questions on community forums, which tends to be a slow and a painful process. Deep Learning with Python allows you to ramp up to such practical know-how in a short period of time and focus more on the domain, models, and algorithms. This book briefly covers the mathematical prerequisites and fundamentals of deep learning, making this book a good starting point for software developers who want to get started in deep learning. A brief survey of deep learning architectures is also included. Deep Learning with Python also introduces you to key concepts of automatic differentiation and GPU computation which, while not central to deep learning, are critical when it comes to conducting large scale experiments. What You Will Learn Leverage deep learning frameworks in Python namely, Keras, Theano,

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and Caffe Gain the fundamentals of deep learning with mathematical prerequisites Discover the practical considerations of large scale experiments Take deep learning models to production Who This Book Is For Software developers who want to try out deep learning as a practical solution to a particular problem. Software developers in a data science team who want to take deep learning models developed by data scientists to production.

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

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reinforcement learning Learn techniques for training and scaling deep neural nets.

Speed up the design and implementation of deep learning solutions using Apache Spark Key Features

Explore the world of distributed deep learning with Apache Spark Train neural networks with deep learning libraries such as BigDL and TensorFlow Develop Spark deep learning applications to intelligently handle large and complex datasets Book Description Deep learning is a subset of machine learning where datasets with several layers of complexity can be processed. Hands-On Deep Learning with Apache Spark addresses the sheer complexity of technical and analytical parts and the speed at which deep learning solutions can be implemented on Apache Spark. The book starts with the fundamentals of Apache Spark and deep learning. You will set up Spark for deep learning, learn principles of distributed modeling, and understand different types of neural nets. You will then implement deep learning models, such as convolutional neural networks (CNNs), recurrent neural networks (RNNs), and long short-term memory (LSTM) on Spark. As you progress through the book, you will gain hands-on experience of what it takes to understand the complex datasets you are dealing with. During the course of this book, you will use popular deep learning frameworks, such as TensorFlow, Deeplearning4j, and Keras to train your distributed models. By the end of this book, you'll have gained experience with the implementation of your models on a variety of use cases. What you will learn Understand the basics of deep learning Set up Apache Spark for deep

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learning Understand the principles of distribution modeling and different types of neural networks Obtain an understanding of deep learning algorithms Discover textual analysis and deep learning with Spark Use popular deep learning frameworks, such as Deeplearning4j, TensorFlow, and Keras Explore popular deep learning algorithms Who this book is for If you are a Scala developer, data scientist, or data analyst who wants to learn how to use Spark for implementing efficient deep learning models, Hands-On Deep Learning with Apache Spark is for you. Knowledge of the core machine learning concepts and some exposure to Spark will be helpful.

Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow Concepts, Tools, and Techniques to Build Intelligent Systems O'Reilly Media

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.

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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.

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Working knowledge of JavaScript language is expected to get the most out of the book.

***** 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

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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 amazon 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

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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

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

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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 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

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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

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required to get the best out of this book.

Markov Models In Machine Learning Machine Learning Interview Questions What is a multinomial naive Bayes algorithm? What is the difference between Bayesian and Markov? Types Of Machine Learning Over the past decades, computers have broadly automated tasks that programmers could describe with clear rules and algorithms. Modern machine learning techniques now allow us to do the same for tasks where describing the precise rules is much harder.

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.

In this Book Hands-On Machine Learning with Scikit Learn, Author covered both Supervised and Unsupervised Machine Learning Algorithms. The total of 11 chapters of this book discusses in there. The first Chapter is basically an Introduction to Machine Learning and Remaining 10 Chapters are basically Machine Learning Algorithms. The authors explain the complete background math of each algorithm also done the practical implementation of each algorithm using Scikit Learn Library in this book.

"This book is designed to introduce the concept of advanced business analytic approaches and would be the first to cover the gamut of how to use the R programming language to apply descriptive, predictive, and

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prescriptive analytic methodologies for problem solving"--

Here is the perfect comprehensive guide for readers with basic to intermediate level knowledge of machine learning and deep learning. It introduces tools such as NumPy for numerical processing, Pandas for panel data analysis, Matplotlib for visualization, Scikit-learn for machine learning, and Pytorch for deep learning with Python as the programming languages. It also serves as a long-term reference manual for the practitioners who will find solutions to commonly occurring scenarios. The book is divided into three sections. The first section introduces you to number crunching and data analysis tools using Python with in-depth explanation on environment configuration, data loading, numerical processing, data analysis, and visualizations. The second section covers machine learning basics and Scikit-learn library. It also explains supervised learning, unsupervised learning, implementation, and classification of regression algorithms, and ensemble learning methods in an easy manner with theoretical and practical lessons. The third section explains complex neural network architectures with details on internal working and implementation of convolutional neural networks. It further discusses neural network architectures for predicting sequences in form of recurrent neural networks and long short term memory. The final chapter contains a detailed end-to-end solution with neural networks in Pytorch. After completing Hands-on Machine Learning with Python, you will be able to implement machine learning and neural network solutions and

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extend them to your advantage. What You'll Learn
Review data structures in NumPy and Pandas
Demonstrate machine learning techniques and algorithm
Understand supervised learning and unsupervised learning
Examine convolutional neural networks and Recurrent neural networks
Get acquainted with scikit-learn and PyTorch
Who This Book Is For Data scientists, machine learning engineers, and software professionals with basic skills in Python programming.

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.

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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

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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.

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

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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.

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

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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. With the help of this book, you'll build smart algorithmic models using machine learning algorithms covering tasks such as time series forecasting, backtesting, trade predictions, and more using easy-to-follow examples. By the end, you'll be able to adopt algorithmic trading in your own business and implement intelligent investigative strategies. Learn how to build complete machine learning systems with IBM Cloud and Watson Machine learning services Key Features Implement data science and machine learning techniques to draw insights from real-world data Understand what IBM Cloud platform can help you to implement cognitive insights within applications Understand the role of data representation and feature extraction in any machine learning system Book Description IBM Cloud is a collection of cloud computing services for data analytics using machine learning and artificial intelligence (AI). This book is a complete guide to help you become well versed with machine learning on the

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IBM Cloud using Python. Hands-On Machine Learning with IBM Watson starts with supervised and unsupervised machine learning concepts, in addition to providing you with an overview of IBM Cloud and Watson Machine Learning. You'll gain insights into running various techniques, such as K-means clustering, K-nearest neighbor (KNN), and time series prediction in IBM Cloud with real-world examples. The book will then help you delve into creating a Spark pipeline in Watson Studio. You will also be guided through deep learning and neural network principles on the IBM Cloud using TensorFlow. With the help of NLP techniques, you can then brush up on building a chatbot. In later chapters, you will cover three powerful case studies, including the facial expression classification platform, the automated classification of lithofacies, and the multi-biometric identity authentication platform, helping you to become well versed with these methodologies. By the end of this book, you will be ready to build efficient machine learning solutions on the IBM Cloud and draw insights from the data at hand using real-world examples. What you will learn

- Understand key characteristics of IBM machine learning services
- Run supervised and unsupervised techniques in the cloud
- Understand how to create a Spark pipeline in Watson Studio
- Implement deep learning and neural networks on the IBM Cloud with TensorFlow
- Create a complete, cloud-based facial expression classification solution
- Use biometric traits to build a cloud-based human identification system

Who this book is for This beginner-level book is for data scientists and machine learning engineers who want to get started with IBM Cloud and its machine learning services using practical examples. Basic knowledge of Python and some understanding of machine learning will be useful.

Implement machine learning, cognitive services, and artificial intelligence solutions by leveraging Azure cloud technologies

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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. 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

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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

Are you excited about Artificial Intelligence and want to get started? Are you excited about Machine Learning and want to learn how to implement in Python? The book below is the answer. Given the large amounts of data we use everyday; whether it is in the web, supermarkets, social media etc. analysis of data has become integral to our daily life. The ability to do so effectively can propel your career or business to great heights. Machine Learning is the most effective data analysis tool. While it is a complex topic, it can be broken down into simpler steps, as show in this book. We are using Python, which is a great programming language for beginners. Python is a great language that is commonly used with Machine Learning. Python is used extensively in Mathematics, Gaming and Graphic Design. It is fast to develop and prototype. It is web capable, meaning that we can use Python to gather web data. It is adaptable, and has great community of users. Here's What's Included In This Book: What is Machine Learning? Why use Python? Regression Analysis using Python with an example Clustering Analysis using Python with an example Implementing an Artificial Neural Network Backpropagation 90 Day Plan to Learn and Implement Machine Learning Conclusion

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Concepts, tools, and techniques to explore deep learning architectures and methodologies

Key Features

- Explore advanced deep learning architectures using various datasets and frameworks
- Implement deep architectures for neural network models such as CNN, RNN, GAN, and many more
- Discover design patterns and different challenges for various deep learning architectures

Book Description

Deep learning architectures are composed of multilevel nonlinear operations that represent high-level abstractions; this allows you to learn useful feature representations from the data. This book will help you learn and implement deep learning architectures to resolve various deep learning research problems.

Hands-On Deep Learning Architectures with Python explains the essential learning algorithms used for deep and shallow architectures. Packed with practical implementations and ideas to help you build efficient artificial intelligence systems (AI), this book will help you learn how neural networks play a major role in building deep architectures. You will understand various deep learning architectures (such as AlexNet, VGG Net, GoogleNet) with easy-to-follow code and diagrams. In addition to this, the book will also guide you in building and training various deep architectures such as the Boltzmann mechanism, autoencoders, convolutional neural networks (CNNs), recurrent neural networks (RNNs), natural language processing (NLP), GAN, and more--all with practical implementations. By the end of this book, you will be able to construct deep models using popular frameworks and datasets with the required design patterns for each architecture. You will be ready to explore the potential of deep architectures in today's world. What you will learn

- Implement CNNs, RNNs, and other commonly used architectures with Python
- Explore architectures such as VGGNet, AlexNet, and GoogLeNet
- Build deep learning architectures for AI applications such as face and image

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recognition, fraud detection, and many more Understand the architectures and applications of Boltzmann machines and autoencoders with concrete examples Master artificial intelligence and neural network concepts and apply them to your architecture Understand deep learning architectures for mobile and embedded systems Who this book is for If you're a data scientist, machine learning developer/engineer, or deep learning practitioner, or are curious about AI and want to upgrade your knowledge of various deep learning architectures, this book will appeal to you. You are expected to have some knowledge of statistics and machine learning algorithms to get the best out of this book

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

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recommender systems using restricted Boltzmann machines
Generate synthetic images using generative adversarial networks

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 Aurlien Gron 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

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.

Machine Learning (ML) is basically that field of computer

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science with the help of which computer systems can provide sense to data in much the same way as human beings do. In simple words, ML is a type of artificial intelligence that extract patterns out of raw data by using an algorithm or method. The key focus of ML is to allow computer systems to learn from experience without being explicitly programmed or human intervention. This book will be useful for graduates, postgraduates, and research students who either have an interest in this subject or have this subject as a part of their curriculum. The reader can be a beginner or an advanced learner. This book has been prepared for the students as well as professionals to ramp up quickly. This book is a stepping stone to your Machine Learning journey. The reader must have basic knowledge of artificial intelligence. He/she should also be aware of Python, NumPy, Scikit-learn, Scipy, Matplotlib. If you are new to any of these concepts, we recommend you to take up books concerning these topics, before you dig further into this book.

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

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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.

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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

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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.

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

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techniques for training and scaling deep neural nets

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

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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

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

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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.

"Machine learning and artificial intelligence are the new big data--at least as far as buzzwords in the workplace go. The scikit-learn library is one of the most popular platforms for everyday Machine Learning and data science because it is built upon Python, a fully featured programming language. This course will help you discover the magical black box that is Machine Learning by teaching a practical approach to modeling using Python along with the Scikit-Learn library. We begin our journey by observing the end result of a Machine Learning deployment before moving back to the

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fundamentals and into exploratory data analysis. Moving on, we learn to develop complex pipelines and techniques for building custom transformer objects for feature extraction, manipulation, and other effective data cleansing techniques. Finally, we discover how to select a model, apply optimal hyper-parameters, and deploy it."--Resource description page.

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

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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.

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

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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

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