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Deep Learning With Python Jason Brownlee 2016-05-13 Deep learning is the most interesting and powerful machine learning technique right now. Top deep learning libraries are available on the Python ecosystem like Theano and TensorFlow. Tap into their power in a few lines of code using Keras, the best-of-breed applied deep learning library. In this Ebook, learn exactly how to get started and apply deep learning to your own machine learning projects.

Python Machine Learning For Beginners Finn Sanders 2019-05-22 Imagine a world where you can make a computer program learn for itself? What if it could recognize who is in a picture or the exact websites that you want to look for when you type it into the program? What if you were able to create any kind of program that you wanted, even as a beginner programmer, without all of the convoluted codes and other information that makes your head spin? This is actually all possible. The programs that were mentioned before are all a part of machine learning. This is a breakthrough in the world of information technology, which allows the computer to learn how to behave, rather than asking the programmer to think of every single instance that may show up with their user ahead of time. It is taking over the world, and you may be using it now, without even realizing it. If you have used a search engine, worked with photo recognition, or done speech recognition devices on your phone, then you have worked with machine learning. And if you combine it with the Python programming language, it is faster, more powerful, and easier (even for beginners) to create your own programs today. Python is considered the ultimate coding language for beginners, but once you start to use it, you will never be able to tell. Many of the best programs out there use this language behind them, and if you are a beginner who is ready to learn, this is a great place to start. If you have a program in mind, or you just want to be able to get some programming knowledge and learn more about the power that comes behind it, then this is the guidebook for you. ★★Some of the topics that we will discuss include★★ ♦ The Fundamentals of Machine Learning, Deep learning, And Neural Networks ♦ How To Set Up Your Environment And Make Sure That Python, TensorFlow And Scikit-Learn Work Well For You ♦ How To Master Neural Network Implementation Using Different Libraries ♦ How Random Forest Algorithms Are Able To Help Out With Machine Learning ♦ How To Uncover Hidden Patterns And Structures With Clustering ♦ How Recurrent Neural Networks Work And When To Use ♦ The Importance Of Linear Classifiers And Why They Need To Be Used In Machine Learning ♦ And Much More! This guidebook is going to provide you with the information you need to get started with Python Machine Learning. If you have an idea for a great program, but you don't have the technical knowledge to make it happen, then this guidebook will help you get started. Machine learning has the capabilities, and Python has the ease, to help you, even as a beginner, create any product that you would like. If you want to learn more about how to make the best programs with Python Machine learning, buy the book today!

Hands-On Neural Networks with Keras Niloy Purkait 2019-03-30 Your one-stop guide to learning and implementing artificial neural networks with Keras effectively Key FeaturesDesign and create neural network architectures on different domains using KerasIntegrate neural network models in your applications using this highly practical guideGet ready for the future of neural networks through transfer learning and predicting multi network modelsBook Description Neural networks are used to solve a wide range of problems in different areas of AI and deep learning. Hands-On Neural Networks with Keras will start with teaching you about the core concepts of neural networks. You will delve into combining different neural network models and work with real-world use cases, including computer vision, natural language understanding, synthetic

data generation, and many more. Moving on, you will become well versed with convolutional neural networks (CNNs), recurrent neural networks (RNNs), long short-term memory (LSTM) networks, autoencoders, and generative adversarial networks (GANs) using real-world training datasets. We will examine how to use CNNs for image recognition, how to use reinforcement learning agents, and many more. We will dive into the specific architectures of various networks and then implement each of them in a hands-on manner using industry-grade frameworks. By the end of this book, you will be highly familiar with all prominent deep learning models and frameworks, and the options you have when applying deep learning to real-world scenarios and embedding artificial intelligence as the core fabric of your organization. What you will learnUnderstand the fundamental nature and workflow of predictive data modelingExplore how different types of visual and linguistic signals are processed by neural networksDive into the mathematical and statistical ideas behind how networks learn from dataDesign and implement various neural networks such as CNNs, LSTMs, and GANsUse different architectures to tackle cognitive tasks and embed intelligence in systemsLearn how to generate synthetic data and use augmentation strategies to improve your modelsStay on top of the latest academic and commercial developments in the field of AIWho this book is for This book is for machine learning practitioners, deep learning researchers and AI enthusiasts who are looking to get well versed with different neural network architecture using Keras. Working knowledge of Python programming language is mandatory.

The Deep Learning with PyTorch Workshop Hyatt Saleh 2020-07-22 Get a head start in the world of AI and deep learning by developing your skills with PyTorch Key FeaturesLearn how to define your own network architecture in deep learningImplement helpful methods to create and train a model using PyTorch syntaxDiscover how intelligent applications using features like image recognition and speech recognition really process your dataBook Description Want to get to grips with one of the most popular machine learning libraries for deep learning? The Deep Learning with PyTorch Workshop will help you do just that, jumpstarting your knowledge of using PyTorch for deep learning even if you're starting from scratch. It's no surprise that deep learning's popularity has risen steeply in the past few years, thanks to intelligent applications such as self-driving vehicles, chatbots, and voice-activated assistants that are making our lives easier. This book will take you inside the world of deep learning, where you'll use PyTorch to understand the complexity of neural network architectures. The Deep Learning with PyTorch Workshop starts with an introduction to deep learning and its applications. You'll explore the syntax of PyTorch and learn how to define a network architecture and train a model. Next, you'll learn about three main neural network architectures - convolutional, artificial, and recurrent - and even solve real-world data problems using these networks. Later chapters will show you how to create a style transfer model to develop a new image from two images, before finally taking you through how RNNs store memory to solve key data issues. By the end of this book, you'll have mastered the essential concepts, tools, and libraries of PyTorch to develop your own deep neural networks and intelligent apps. What you will learnExplore the different applications of deep learningUnderstand the PyTorch approach to building neural networksCreate and train your very own perceptron using PyTorchSolve regression problems using artificial neural networks (ANNs)Handle computer vision problems with convolutional neural networks (CNNs)Perform language translation tasks using recurrent neural networks (RNNs)Who this book is for This deep learning book is ideal for anyone who wants to create and train deep learning models using PyTorch. A solid understanding of the Python programming language and its packages will help you grasp the topics covered in the book more quickly.

Hands-On Neuroevolution with Python Iaroslav Omelianenko 2019-12-24 Increase the performance of various neural network architectures using NEAT, HyperNEAT, ES-HyperNEAT, Novelty Search, SAFE, and deep neuroevolution Key Features Implement neuroevolution algorithms to improve the performance of neural network architectures Understand evolutionary algorithms and neuroevolution methods with real-world examples Learn essential neuroevolution concepts and how they are used in domains including games, robotics, and simulations Book Description Neuroevolution is a form of artificial intelligence learning that uses evolutionary algorithms to simplify the process of solving complex tasks in domains such as games, robotics, and the simulation of natural processes. This book will give you comprehensive insights into essential neuroevolution concepts and equip you with the skills you need to apply neuroevolution-based algorithms to solve practical, real-world problems. You'll start with learning the key neuroevolution concepts and methods by writing code with Python. You'll also get hands-on experience with popular Python libraries and cover examples of classical reinforcement learning, path planning for autonomous agents, and developing agents to autonomously play Atari games. Next, you'll learn to solve common and not-so-common challenges in natural computing using neuroevolution-based algorithms. Later, you'll understand how to apply neuroevolution strategies to existing neural network designs to improve training and inference performance. Finally, you'll gain clear insights into the topology of neural networks and how neuroevolution allows you to develop complex networks, starting with simple ones. By the end of this book, you will not only have explored existing neuroevolution-based algorithms, but also have the skills you need to apply them in your research and work assignments. What you will learn Discover the most popular neuroevolution algorithms - NEAT, HyperNEAT, and ES-HyperNEAT Explore how to implement neuroevolution-based algorithms in Python Get up to speed with advanced visualization tools to examine evolved neural network graphs Understand how to examine the results of experiments and analyze algorithm performance Delve into neuroevolution techniques to improve the performance of existing methods Apply deep neuroevolution to develop agents for playing Atari games Who this book is for This book is for machine learning practitioners, deep learning researchers, and AI enthusiasts who are looking to implement neuroevolution algorithms from scratch. Working knowledge of the Python programming language and basic knowledge of deep learning and neural networks are mandatory.

Artificial Intelligence with Python Prateek Joshi 2017-01-27 Build real-world Artificial Intelligence applications with Python to intelligently interact with the world around you About This Book Step into the amazing world of intelligent apps using this comprehensive guide Enter the world of Artificial Intelligence, explore it, and create your own applications Work through simple yet insightful examples that will get you up and running with Artificial Intelligence in no time Who This Book Is For This book is for Python developers who want to build real-world Artificial Intelligence applications. This book is friendly to Python beginners, but being familiar with Python would be useful to play around with the code. It will also be useful for experienced Python programmers who are looking to use Artificial Intelligence techniques in their existing technology stacks. What You Will Learn Realize different classification and regression techniques Understand the concept of clustering and how to use it to automatically segment data See how to build an intelligent recommender system Understand logic programming and how to use it Build automatic speech recognition systems Understand the basics of heuristic search and genetic programming Develop games using Artificial Intelligence Learn how reinforcement learning works Discover how to build intelligent applications centered on images, text, and time series data See how to use deep learning algorithms and build applications based on it In Detail Artificial Intelligence is becoming increasingly relevant in the modern world where everything is driven by technology and data. It is used extensively across many fields such as search engines, image recognition, robotics, finance, and so on. We will explore various real-world scenarios in this book and you'll learn about various algorithms that can be used to build Artificial Intelligence applications. During the course of this book, you will find out how to make informed decisions about what algorithms to use in a given context. Starting from the basics of Artificial Intelligence, you will learn how to develop various building blocks using different data mining techniques. You will see how to implement different algorithms to get the best possible results, and will understand how to apply them to real-world scenarios. If you want to add an intelligence layer to any application that's based on images, text, stock market, or some other form of data, this exciting book on Artificial Intelligence will definitely be your guide! Style and approach This highly

practical book will show you how to implement Artificial Intelligence. The book provides multiple examples enabling you to create smart applications to meet the needs of your organization. In every chapter, we explain an algorithm, implement it, and then build a smart application.

Programming With Python Frank Millstein 2020-09-05 Programming With Python - 4 BOOK BUNDLE!! Deep Learning with Keras Here Is a Preview of What You'll Learn Here... The difference between deep learning and machine learning Deep neural networks Convolutional neural networks Building deep learning models with Keras Multi-layer perceptron network models Activation functions Handwritten recognition using MNIST Solving multi-class classification problems Recurrent neural networks and sequence classification And much more... Convolutional Neural Networks in Python Here Is a Preview of What You'll Learn In This Book... Convolutional neural networks structure How convolutional neural networks actually work Convolutional neural networks applications The importance of convolution operator Different convolutional neural networks layers and their importance Arrangement of spatial parameters How and when to use stride and zero-padding Method of parameter sharing Matrix multiplication and its importance Pooling and dense layers Introducing non-linearity relu activation function How to train your convolutional neural network models using backpropagation How and why to apply dropout CNN model training process How to build a convolutional neural network Generating predictions and calculating loss functions How to train and evaluate your MNIST classifier How to build a simple image classification CNN And much, much more! Python Machine Learning Here Is A Preview Of What You'll Learn Here... Basics behind machine learning techniques Different machine learning algorithms Fundamental machine learning applications and their importance Getting started with machine learning in Python, installing and starting SciPy Loading data and importing different libraries Data summarization and data visualization Evaluation of machine learning models and making predictions Most commonly used machine learning algorithms, linear and logistic regression, decision trees support vector machines, k-nearest neighbors, random forests Solving multi-classification problems Data visualization with Matplotlib and data transformation with Pandas and Scikit-learn Solving multi-label classification problems And much, much more... Machine Learning With TensorFlow Here Is a Preview of What You'll Learn Here... What is machine learning Main uses and benefits of machine learning How to get started with TensorFlow, installing and loading data Data flow graphs and basic TensorFlow expressions How to define your data flow graphs and how to use TensorBoard for data visualization Main TensorFlow operations and building tensors How to perform data transformation using different techniques How to build high performance data pipelines using TensorFlow Dataset framework How to create TensorFlow iterators Creating MNIST classifiers with one-hot transformation Get this book bundle NOW and SAVE money!

Neural Network Projects with Python James Loy 2019-02-28 Build your Machine Learning portfolio by creating 6 cutting-edge Artificial Intelligence projects using neural networks in Python Key Features Discover neural network architectures (like CNN and LSTM) that are driving recent advancements in AI Build expert neural networks in Python using popular libraries such as Keras Includes projects such as object detection, face identification, sentiment analysis, and more Book Description Neural networks are at the core of recent AI advances, providing some of the best resolutions to many real-world problems, including image recognition, medical diagnosis, text analysis, and more. This book goes through some basic neural network and deep learning concepts, as well as some popular libraries in Python for implementing them. It contains practical demonstrations of neural networks in domains such as fare prediction, image classification, sentiment analysis, and more. In each case, the book provides a problem statement, the specific neural network architecture required to tackle that problem, the reasoning behind the algorithm used, and the associated Python code to implement the solution from scratch. In the process, you will gain hands-on experience with using popular Python libraries such as Keras to build and train your own neural networks from scratch. By the end of this book, you will have mastered the different neural network architectures and created cutting-edge AI projects in Python that will immediately strengthen your machine learning portfolio. What you will learn Learn various neural network architectures and its advancements in AI Master deep learning in Python by building and training neural network Master neural networks for regression and classification Discover convolutional neural networks for image recognition Learn sentiment analysis on textual data using Long Short-Term Memory Build and train a highly accurate facial recognition security system Who this book is for This book is a perfect match for data scientists, machine learning engineers, and

deep learning enthusiasts who wish to create practical neural network projects in Python. Readers should already have some basic knowledge of machine learning and neural networks.

Hands-On Python Deep Learning for the Web Anubhav Singh 2020-05-15 Use the power of deep learning with Python to build and deploy intelligent web applications Key Features Create next-generation intelligent web applications using Python libraries such as Flask and Django Implement deep learning algorithms and techniques for performing smart web automation Integrate neural network architectures to create powerful full-stack web applications Book Description When used effectively, deep learning techniques can help you develop intelligent web apps. In this book, you'll cover the latest tools and technological practices that are being used to implement deep learning in web development using Python. Starting with the fundamentals of machine learning, you'll focus on DL and the basics of neural networks, including common variants such as convolutional neural networks (CNNs). You'll learn how to integrate them into websites with the frontends of different standard web tech stacks. The book then helps you gain practical experience of developing a deep learning-enabled web app using Python libraries such as Django and Flask by creating RESTful APIs for custom models. Later, you'll explore how to set up a cloud environment for deep learning-based web deployments on Google Cloud and Amazon Web Services (AWS). Next, you'll learn how to use Microsoft's intelligent Emotion API, which can detect a person's emotions through a picture of their face. You'll also get to grips with deploying real-world websites, in addition to learning how to secure websites using reCAPTCHA and Cloudflare. Finally, you'll use NLP to integrate a voice UX through Dialogflow on your web pages. By the end of this book, you'll have learned how to deploy intelligent web apps and websites with the help of effective tools and practices. What you will learn Explore deep learning models and implement them in your browser Design a smart web-based client using Django and Flask Work with different Python-based APIs for performing deep learning tasks Implement popular neural network models with TensorFlow.js Design and build deep web services on the cloud using deep learning Get familiar with the standard workflow of taking deep learning models into production Who this book is for This deep learning book is for data scientists, machine learning practitioners, and deep learning engineers who are looking to perform deep learning techniques and methodologies on the web. You will also find this book useful if you're a web developer who wants to implement smart techniques in the browser to make it more interactive. Working knowledge of the Python programming language and basic machine learning techniques will be beneficial.

Neural Networks Steven Cooper 2018-11-06 ☆★ The Best Neural Networks Book for Beginners ★☆ If you are looking for a complete beginners guide to learn neural networks with examples, in just a few hours, then you need to continue reading. Have you noticed the increasing prevalence of software that tries to learn from you? More and more, we are interacting with machines and platforms that try to predict what we are looking for. From movie and television show recommendations on Netflix based on your taste to the keyboard on your smartphone trying to predict and recommend the next word you may want to type, it's becoming obvious that machine learning will definitely be part of our future. If you are interested in learning more about the computer programs of tomorrow then, *Understanding Neural Networks - A Practical Guide for Understanding and Programming Neural Networks and Useful Insights for Inspiring Reinvention* is the book you have been waiting for. ★★ Grab your copy today and learn ★★ ♦ The history of neural networks and the way modern neural networks work ♦ How deep learning works ♦ The different types of neural networks ♦ The ability to explain a neural network to others, while simultaneously being able to build on this knowledge without being COMPLETELY LOST ♦ How to build your own neural network! ♦ An effective technique for hacking into a neural network ♦ Some introductory advice for modifying parameters in the code-based environment ♦ And much more... You'll be an Einstein in no time! And even if you are already up to speed on the topic, this book has the power to illustrate what a neural network is in a way that is capable of inspiring new approaches and technical improvements. The world can't wait to see what you can do! Most of all, this book will feed the abstract reasoning region of your mind so that you are able to theorize and invent new types and styles of machine learning. So, what are you waiting for? Scroll up and click the buy now button to learn everything you need to know in no time!

Deep Learning with Python Francois Chollet 2017-11-30 Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and

Neural Network Programming With Python Create Your Own Neural Network Pdf upload
Jason d Ferguson

Google AI researcher Francois Chollet, this book builds your understanding through intuitive explanations and practical examples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Machine learning has made remarkable progress in recent years. We went from near-unusable speech and image recognition, to near-human accuracy. We went from machines that couldn't beat a serious Go player, to defeating a world champion. Behind this progress is deep learning—a combination of engineering advances, best practices, and theory that enables a wealth of previously impossible smart applications. About the Book Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher Francois Chollet, this book builds your understanding through intuitive explanations and practical examples. You'll explore challenging concepts and practice with applications in computer vision, natural-language processing, and generative models. By the time you finish, you'll have the knowledge and hands-on skills to apply deep learning in your own projects. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image-classification models Deep learning for text and sequences Neural style transfer, text generation, and image generation About the Reader Readers need intermediate Python skills. No previous experience with Keras, TensorFlow, or machine learning is required. About the Author Francois Chollet works on deep learning at Google in Mountain View, CA. He is the creator of the Keras deep-learning library, as well as a contributor to the TensorFlow machine-learning framework. He also does deep-learning research, with a focus on computer vision and the application of machine learning to formal reasoning. His papers have been published at major conferences in the field, including the Conference on Computer Vision and Pattern Recognition (CVPR), the Conference and Workshop on Neural Information Processing Systems (NIPS), the International Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix B - Running Jupyter notebooks on an EC2 GPU instance

Grokking Deep Learning Andrew W. Trask 2019-01-23 Summary Grokking Deep Learning teaches you to build deep learning neural networks from scratch! In his engaging style, seasoned deep learning expert Andrew Trask shows you the science under the hood, so you grok for yourself every detail of training neural networks. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Deep learning, a branch of artificial intelligence, teaches computers to learn by using neural networks, technology inspired by the human brain. Online text translation, self-driving cars, personalized product recommendations, and virtual voice assistants are just a few of the exciting modern advancements possible thanks to deep learning. About the Book Grokking Deep Learning teaches you to build deep learning neural networks from scratch! In his engaging style, seasoned deep learning expert Andrew Trask shows you the science under the hood, so you grok for yourself every detail of training neural networks. Using only Python and its math-supporting library, NumPy, you'll train your own neural networks to see and understand images, translate text into different languages, and even write like Shakespeare! When you're done, you'll be fully prepared to move on to mastering deep learning frameworks. What's inside The science behind deep learning Building and training your own neural networks Privacy concepts, including federated learning Tips for continuing your pursuit of deep learning About the Reader For readers with high school-level math and intermediate programming skills. About the Author Andrew Trask is a PhD student at Oxford University and a research scientist at DeepMind. Previously, Andrew was a researcher and analytics product manager at Digital Reasoning, where he trained the world's largest artificial neural network and helped guide the analytics roadmap for the Synthesys cognitive computing platform. Table of Contents Introducing deep learning: why you should learn it Fundamental concepts: how do machines learn? Introduction to neural prediction: forward propagation Introduction to neural learning: gradient descent Learning multiple weights at a time: generalizing gradient descent Building your first deep neural network: introduction to backpropagation How to picture neural networks: in your head and on paper Learning signal and ignoring noise: introduction to regularization and batching Modeling probabilities and

nonlinearities: activation functions Neural learning about edges and corners: intro to convolutional neural networks Neural networks that understand language: king - man + woman == ? Neural networks that write like Shakespeare: recurrent layers for variable-length data Introducing automatic optimization: let's build a deep learning framework Learning to write like Shakespeare: long short-term memory Deep learning on unseen data: introducing federated learning Where to go from here: a brief guide

Python Deep Learning: Develop Your First Neural Network in Python Using Tensorflow, Keras, and Pytorch Samuel Burns 2019-04-03 Build your Own Neural Network today. Through easy-to-follow instruction and examples, you'll learn the fundamentals of Deep learning and build your very own Neural Network in Python using TensorFlow, Keras, PyTorch, and Theano. While you have the option of spending thousands of dollars on big and boring textbooks, we recommend getting the same pieces of information for a fraction of the cost. So Get Your Copy Now!! Why this book? Book ObjectivesThe following are the objectives of this book: To help you understand deep learning in detail To help you know how to get started with deep learning in Python by setting up the coding environment. To help you transition from a deep learning Beginner to a Professional. To help you learn how to develop a complete and functional artificial neural network model in Python on your own. Who this Book is for? The author targets the following groups of people: Anybody who is a complete beginner to deep learning with Python. Anybody in need of advancing their Python for deep learning skills. Professors, lecturers or tutors who are looking to find better ways to explain Deep Learning to their students in the simplest and easiest way. Students and academicians, especially those focusing on python programming, neural networks, machine learning, and deep learning. What do you need for this Book? You are required to have installed the following on your computer: Python 3.X. TensorFlow . Keras . PyTorch The Author guides you on how to install the rest of the Python libraries that are required for deep learning.The author will guide you on how to install and configure the rest. What is inside the book? What is Deep Learning? An Overview of Artificial Neural Networks. Exploring the Libraries. Installation and Setup. TensorFlow Basics. Deep Learning with TensorFlow. Keras Basics. PyTorch Basics. Creating Convolutional Neural Networks with PyTorch. Creating Recurrent Neural Networks with PyTorch. From the back cover. Deep learning is part of machine learning methods based on learning data representations. This book written by Samuel Burns provides an excellent introduction to deep learning methods for computer vision applications. The author does not focus on too much math since this guide is designed for developers who are beginners in the field of deep learning. The book has been grouped into chapters, with each chapter exploring a different feature of the deep learning libraries that can be used in Python programming language. Each chapter features a unique Neural Network architecture including Convolutional Neural Networks. After reading this book, you will be able to build your own Neural Networks using Tensorflow, Keras, and PyTorch. Moreover, the author has provided Python codes, each code performing a different task. Corresponding explanations have also been provided alongside each piece of code to help the reader understand the meaning of the various lines of the code. In addition to this, screenshots showing the output that each code should return have been given. The author has used a simple language to make it easy even for beginners to understand.

Deep Learning Essentials Anurag Bhardwaj 2018-01-30 Get to grips with the essentials of deep learning by leveraging the power of Python Key Features Your one-stop solution to get started with the essentials of deep learning and neural network modeling Train different kinds of neural networks to tackle various problems in Natural Language Processing, computer vision, speech recognition, and more Covers popular Python libraries such as Tensorflow, Keras, and more, along with tips on training, deploying and optimizing your deep learning models in the best possible manner Book Description Deep Learning a trending topic in the field of Artificial Intelligence today and can be considered to be an advanced form of machine learning, which is quite tricky to master. This book will help you take your first steps in training efficient deep learning models and applying them in various practical scenarios. You will model, train, and deploy different kinds of neural networks such as Convolutional Neural Network, Recurrent Neural Network, and will see some of their applications in real-world domains including computer vision, natural language processing, speech recognition, and so on. You will build practical projects such as chatbots, implement reinforcement learning to build smart games, and develop expert systems for image captioning and processing. Popular Python library such as TensorFlow is used in this book to build the models. This book also covers solutions for

different problems you might come across while training models, such as noisy datasets, small datasets, and more. This book does not assume any prior knowledge of deep learning. By the end of this book, you will have a firm understanding of the basics of deep learning and neural network modeling, along with their practical applications. What you will learn Get to grips with the core concepts of deep learning and neural networks Set up deep learning library such as TensorFlow Fine-tune your deep learning models for NLP and Computer Vision applications Unify different information sources, such as images, text, and speech through deep learning Optimize and fine-tune your deep learning models for better performance Train a deep reinforcement learning model that plays a game better than humans Learn how to make your models get the best out of your GPU or CPU Who this book is for Aspiring data scientists and machine learning experts who have limited or no exposure to deep learning will find this book to be very useful. If you are looking for a resource that gets you up and running with the fundamentals of deep learning and neural networks, this book is for you. As the models in the book are trained using the popular Python-based libraries such as Tensorflow and Keras, it would be useful to have sound programming knowledge of Python.

Hands-On Generative Adversarial Networks with PyTorch 1.x John Hany 2019-12-12 Apply deep learning techniques and neural network methodologies to build, train, and optimize generative network models Key FeaturesImplement GAN architectures to generate images, text, audio, 3D models, and moreUnderstand how GANs work and become an active contributor in the open source communityLearn how to generate photo-realistic images based on text descriptionsBook Description With continuously evolving research and development, Generative Adversarial Networks (GANs) are the next big thing in the field of deep learning. This book highlights the key improvements in GANs over generative models and guides in making the best out of GANs with the help of hands-on examples. This book starts by taking you through the core concepts necessary to understand how each component of a GAN model works. You'll build your first GAN model to understand how generator and discriminator networks function. As you advance, you'll delve into a range of examples and datasets to build a variety of GAN networks using PyTorch functionalities and services, and become well-versed with architectures, training strategies, and evaluation methods for image generation, translation, and restoration. You'll even learn how to apply GAN models to solve problems in areas such as computer vision, multimedia, 3D models, and natural language processing (NLP). The book covers how to overcome the challenges faced while building generative models from scratch. Finally, you'll also discover how to train your GAN models to generate adversarial examples to attack other CNN and GAN models. By the end of this book, you will have learned how to build, train, and optimize next-generation GAN models and use them to solve a variety of real-world problems. What you will learnImplement PyTorch's latest features to ensure efficient model designingGet to grips with the working mechanisms of GAN modelsPerform style transfer between unpaired image collections with CycleGANBuild and train 3D-GANs to generate a point cloud of 3D objectsCreate a range of GAN models to perform various image synthesis operationsUse SEGAN to suppress noise and improve the quality of speech audioWho this book is for This GAN book is for machine learning practitioners and deep learning researchers looking to get hands-on guidance in implementing GAN models using PyTorch. You'll become familiar with state-of-the-art GAN architectures with the help of real-world examples. Working knowledge of Python programming language is necessary to grasp the concepts covered in this book.

Practical Deep Learning Ronald T. Kneusel 2021-02-23 Practical Deep Learning teaches total beginners how to build the datasets and models needed to train neural networks for your own DL projects. If you've been curious about machine learning but didn't know where to start, this is the book you've been waiting for. Focusing on the subfield of machine learning known as deep learning, it explains core concepts and gives you the foundation you need to start building your own models. Rather than simply outlining recipes for using existing toolkits, Practical Deep Learning teaches you the why of deep learning and will inspire you to explore further. All you need is basic familiarity with computer programming and high school math—the book will cover the rest. After an introduction to Python, you'll move through key topics like how to build a good training dataset, work with the scikit-learn and Keras libraries, and evaluate your models' performance. You'll also learn: How to use classic machine learning models like k-Nearest Neighbors, Random Forests, and Support Vector Machines How neural networks work and how they're trained How to use convolutional neural networks How to develop a successful deep learning model from scratch You'll conduct experiments along

the way, building to a final case study that incorporates everything you've learned. The perfect introduction to this dynamic, ever-expanding field, Practical Deep Learning will give you the skills and confidence to dive into your own machine learning projects.

Programming Machine Learning Paolo Perrotta 2020-03-31 You've decided to tackle machine learning - because you're job hunting, embarking on a new project, or just think self-driving cars are cool. But where to start? It's easy to be intimidated, even as a software developer. The good news is that it doesn't have to be that hard. Master machine learning by writing code one line at a time, from simple learning programs all the way to a true deep learning system. Tackle the hard topics by breaking them down so they're easier to understand, and build your confidence by getting your hands dirty. Peel away the obscurities of machine learning, starting from scratch and going all the way to deep learning. Machine learning can be intimidating, with its reliance on math and algorithms that most programmers don't encounter in their regular work. Take a hands-on approach, writing the Python code yourself, without any libraries to obscure what's really going on. Iterate on your design, and add layers of complexity as you go. Build an image recognition application from scratch with supervised learning. Predict the future with linear regression. Dive into gradient descent, a fundamental algorithm that drives most of machine learning. Create perceptrons to classify data. Build neural networks to tackle more complex and sophisticated data sets. Train and refine those networks with backpropagation and batching. Layer the neural networks, eliminate overfitting, and add convolution to transform your neural network into a true deep learning system. Start from the beginning and code your way to machine learning mastery. What You Need: The examples in this book are written in Python, but don't worry if you don't know this language: you'll pick up all the Python you need very quickly. Apart from that, you'll only need your computer, and your code-adept brain.

Deep Learning with Pytorch Jerry N. P 2019-01-29 This book is an exploration of deep learning in Python using PyTorch. The author guides you on how to create neural network models using PyTorch in Python. You will know the initial steps of getting started with PyTorch in Python. This involves installing PyTorch and writing your first code. PyTorch works using the concept of graphs. The author helps you know how build neural network graphs in PyTorch. Deep learning in Python with PyTorch simply involves the creation of neural network models. The author helps you understand how to create neural network models with TensorFlow. You are guided on how to train such models with data of various types. Examples of such data include images and text. The process of loading your own data into PyTorch for training neural network models has also been discussed. You will also know how to use the inbuilt data for training your neural network models. This book will help you to understand: - Why PyTorch for Deep Learning? - Getting Started with PyTorch - Building a Neural Network - Loading and Processing Data - Convolutional Neural Networks - Transfer Learning - Developing Distributed Applications - Word Embeddings - Moving a Model from PyTorch to Caffe2 - Custom C Extensions - Neural Transfer with PyTorch Tags: pytorch deep learning, python programming, python, python data science handbook, neural network python, tensorflow python, tensorflow for deep learning, python code programming.

Artificial Intelligence with Python Alberto Artasanchez 2020-01-31 New edition of the bestselling guide to artificial intelligence with Python, updated to Python 3.x, with seven new chapters that cover RNNs, AI and Big Data, fundamental use cases, chatbots, and more. Key Features Completely updated and revised to Python 3.x New chapters for AI on the cloud, recurrent neural networks, deep learning models, and feature selection and engineering Learn more about deep learning algorithms, machine learning data pipelines, and chatbots Book Description Artificial Intelligence with Python, Second Edition is an updated and expanded version of the bestselling guide to artificial intelligence using the latest version of Python 3.x. Not only does it provide you an introduction to artificial intelligence, this new edition goes further by giving you the tools you need to explore the amazing world of intelligent apps and create your own applications. This edition also includes seven new chapters on more advanced concepts of Artificial Intelligence, including fundamental use cases of AI; machine learning data pipelines; feature selection and feature engineering; AI on the cloud; the basics of chatbots; RNNs and DL models; and AI and Big Data. Finally, this new edition explores various real-world scenarios and teaches you how to apply relevant AI algorithms to a wide swath of problems, starting with the most basic AI concepts and progressively building from there to solve more difficult challenges so that by the end, you will have gained a solid understanding of, and when best to use, these many artificial

intelligence techniques. What you will learn Understand what artificial intelligence, machine learning, and data science are Explore the most common artificial intelligence use cases Learn how to build a machine learning pipeline Assimilate the basics of feature selection and feature engineering Identify the differences between supervised and unsupervised learning Discover the most recent advances and tools offered for AI development in the cloud Develop automatic speech recognition systems and chatbots Apply AI algorithms to time series data Who this book is for The intended audience for this book is Python developers who want to build real-world Artificial Intelligence applications. Basic Python programming experience and awareness of machine learning concepts and techniques is mandatory.

Graph Neural Networks Maxime Labonne 2023-04 Design robust graph neural networks with PyTorch Geometric by combining graph theory and neural networks with the latest developments and apps Purchase of the print or Kindle book includes a free PDF eBook Key Features: Implement state-of-the-art graph neural network architectures in Python Create your own graph datasets from tabular data Build powerful traffic forecasting, recommender systems, and anomaly detection applications Book Description: Graph neural networks are a highly effective tool for analyzing data that can be represented as a graph, such as social networks, chemical compounds, or transportation networks. The past few years have seen an explosion in the use of graph neural networks, with their application ranging from natural language processing and computer vision to recommendation systems and drug discovery. Hands-On Graph Neural Networks Using Python begins with the fundamentals of graph theory and shows you how to create graph datasets from tabular data. As you advance, you'll explore major graph neural network architectures and learn essential concepts such as graph convolution, self-attention, link prediction, and heterogeneous graphs. Finally, the book proposes applications to solve real-life problems, enabling you to build a professional portfolio. The code is readily available online and can be easily adapted to other datasets and apps. By the end of this book, you'll have learned to create graph datasets, implement graph neural networks using Python and PyTorch Geometric, and apply them to solve real-world problems, along with building and training graph neural network models for node and graph classification, link prediction, and much more. What You Will Learn: Understand the fundamental concepts of graph neural networks Implement graph neural networks using Python and PyTorch Geometric Classify nodes, graphs, and edges using millions of samples Predict and generate realistic graph topologies Combine heterogeneous sources to improve performance Forecast future events using topological information Apply graph neural networks to solve real-world problems Who this book is for: This book is for machine learning practitioners and data scientists interested in learning about graph neural networks and their applications, as well as students looking for a comprehensive reference on this rapidly growing field. Whether you're new to graph neural networks or looking to take your knowledge to the next level, this book has something for you. Basic knowledge of machine learning and Python programming will help you get the most out of this book.

Deep Learning for Natural Language Processing Palash Goyal 2018-06-26 Discover the concepts of deep learning used for natural language processing (NLP), with full-fledged examples of neural network models such as recurrent neural networks, long short-term memory networks, and sequence-2-sequence models. You'll start by covering the mathematical prerequisites and the fundamentals of deep learning and NLP with practical examples. The first three chapters of the book cover the basics of NLP, starting with word-vector representation before moving onto advanced algorithms. The final chapters focus entirely on implementation, and deal with sophisticated architectures such as RNN, LSTM, and Seq2seq, using Python tools: TensorFlow, and Keras. Deep Learning for Natural Language Processing follows a progressive approach and combines all the knowledge you have gained to build a question-answer chatbot system. This book is a good starting point for people who want to get started in deep learning for NLP. All the code presented in the book will be available in the form of IPython notebooks and scripts, which allow you to try out the examples and extend them in interesting ways. What You Will Learn Gain the fundamentals of deep learning and its mathematical prerequisites Discover deep learning frameworks in Python Develop a chatbot Implement a research paper on sentiment classification Who This Book Is For Software developers who are curious to try out deep learning with NLP.

Python Machine Learning Django Smith 2019-06-10 Start Programming Python What if you could make your own program, one that is able to learn by trial and error, or based on the information that you show it?

What if you could get a program that could adapt and change based on the input of the user? And what if you were able to make all of this happen with the Python coding language, helping even beginner's work with more complicated codes? This is all possible with Python machine learning. This guidebook is going to take some time to look at Python machine learning and all of the neat things that you are able to do with it. Machine learning is a growing field, one that a lot of programmers want to spend their time on. But even though this sounds like a complicated part of technology to work with, you will find that with the help of the Python coding language, anyone can start writing their own codes in machine learning. This guidebook is going to take a look at all of the different topics that you need to know in order to get started with Python machine learning. Some of the topics that we will explore inside include: The basics of machine learning The difference between supervised and unsupervised machine learning. Setting up your new environment in the Python language. Data preprocessing with the help of machine learning. How to use Python coding to help with linear regression. Decision trees and random forests. How to work with support vector regression problems. Can machine learning really help with Naïve Bayes problems? Accelerated data analysis using the Python code. And so much more! If you have been interested in learning more about machine learning, and you want to be able to learn a few of the codes that can make it happen for you, make sure to check out this guidebook to help you get started! If all of this sounds like your ideal book, then hop on over and hit now that buy button! Well, stress no more! Buy this book and also learn all... and DOWNLOAD IT NOW! ★★Buy the Paperback Version of this Book and get the Kindle Book version for FREE ★★

[Programming PyTorch for Deep Learning](#) Ian Pointer 2019-09-20 Deep learning is changing everything. This machine-learning method has already surpassed traditional computer vision techniques, and the same is happening with NLP. If you're looking to bring deep learning into your domain, this practical book will bring you up to speed on key concepts using Facebook's PyTorch framework. Once author Ian Pointer helps you set up PyTorch on a cloud-based environment, you'll learn how use the framework to create neural architectures for performing operations on images, sound, text, and other types of data. By the end of the book, you'll be able to create neural networks and train them on multiple types of data. Learn how to deploy deep learning models to production Explore PyTorch use cases in companies other than Facebook Learn how to apply transfer learning to images Apply cutting-edge NLP techniques using a model trained on Wikipedia

Python Programming, Deep Learning Anthony Adams 2021-12-17 Easily Boost Your Skills In Python Programming & Become A Master In Deep Learning & Data Analysis! ☐ Python is an interpreted, high-level, general-purpose programming language that emphasizes code readability with its notable use of significant whitespace. What makes Python so popular in the IT industry is that it uses an object-oriented approach, which enables programmers to write clear, logical code for all types of projects, whether big or small. Hone your Python Programming skills and gain a sharp edge over other programmers the EASIEST way possible... with this practical beginner's guide! In his 3-in-1 Python crash course for beginners, Anthony Adams gives novices like you simple, yet efficient tips and tricks to become a MASTER in Python coding for artificial intelligence, neural networks, machine learning, and data science/analysis! Here's what you'll get: ☐ Highly innovative ways to boost your understanding of Python programming, data analysis, and machine learning ☐ Quickly and effectively stop fraud with machine learning ☐ Practical and efficient exercises that make understanding Python quick & easy And so much more! As a beginner, you might feel a bit intimidated by the complexities of coding. Add the fact that most Python Programming crash course guides make learning harder than it has to be! ✓ With the help of this 3-in-1 guide, you will be given carefully sequenced Python Programming lessons that'll maximize your understanding, and equip you with all the skills for real-life application! ★ Thrive in the IT industry with this comprehensive Python Programming crash course! ★ Scroll up, Click on "Buy Now", and Start Learning Today!

[Make Your Own Neural Network](#) Tariq Rashid 2016 This book is for anyone who wants to understand what neural network[s] are. It's for anyone who wants to make and use their own. And it's for anyone who wants to appreciate the fairly easy but exciting mathematical ideas that are at the core of how they work. This guide is not aimed at experts in mathematics or computer science. You won't need any special knowledge or mathematical ability beyond school maths [sic] ... Teachers can use this guide as a particularly gentle explanation of neural networks and their implementation to enthuse and excite students making their very own learning artificial intelligence with only a few lines of programming language code. The code has been

tested to work with a Raspberry Pi, a small inexpensive computer very popular in schools and with young students"--(page 6, Introduction)

[Python Machine Learning](#) Sebastian Raschka 2017-09-20 Unlock modern machine learning and deep learning techniques with Python by using the latest cutting-edge open source Python libraries. About This Book Second edition of the bestselling book on Machine Learning A practical approach to key frameworks in data science, machine learning, and deep learning Use the most powerful Python libraries to implement machine learning and deep learning Get to know the best practices to improve and optimize your machine learning systems and algorithms Who This Book Is For If you know some Python and you want to use machine learning and deep learning, pick up this book. Whether you want to start from scratch or extend your machine learning knowledge, this is an essential and unmissable resource. Written for developers and data scientists who want to create practical machine learning and deep learning code, this book is ideal for developers and data scientists who want to teach computers how to learn from data. What You Will Learn Understand the key frameworks in data science, machine learning, and deep learning Harness the power of the latest Python open source libraries in machine learning Explore machine learning techniques using challenging real-world data Master deep neural network implementation using the TensorFlow library Learn the mechanics of classification algorithms to implement the best tool for the job Predict continuous target outcomes using regression analysis Uncover hidden patterns and structures in data with clustering Delve deeper into textual and social media data using sentiment analysis In Detail Machine learning is eating the software world, and now deep learning is extending machine learning. Understand and work at the cutting edge of machine learning, neural networks, and deep learning with this second edition of Sebastian Raschka's bestselling book, Python Machine Learning. Thoroughly updated using the latest Python open source libraries, this book offers the practical knowledge and techniques you need to create and contribute to machine learning, deep learning, and modern data analysis. Fully extended and modernized, Python Machine Learning Second Edition now includes the popular TensorFlow deep learning library. The scikit-learn code has also been fully updated to include recent improvements and additions to this versatile machine learning library. Sebastian Raschka and Vahid Mirjalili's unique insight and expertise introduce you to machine learning and deep learning algorithms from scratch, and show you how to apply them to practical industry challenges using realistic and interesting examples. By the end of the book, you'll be ready to meet the new data analysis opportunities in today's world. If you've read the first edition of this book, you'll be delighted to find a new balance of classical ideas and modern insights into machine learning. Every chapter has been critically updated, and there are new chapters on key technologies. You'll be able to learn and work with TensorFlow more deeply than ever before, and get essential coverage of the Keras neural network library, along with the most recent updates to scikit-learn. Style and Approach Python Machine Learning Second Edition takes a practical, hands-on coding approach so you can learn about machine learning by coding with Python. This book moves fluently between the theoretical principles of machine learning and the practical details of implementation with Python.

Deep Learning with PyTorch Quick Start Guide David Julian 2018-12-24 Introduction to deep learning and PyTorch by building a convolutional neural network and recurrent neural network for real-world use cases such as image classification, transfer learning, and natural language processing. Key FeaturesClear and concise explanationsGives important insights into deep learning modelsPractical demonstration of key conceptsBook Description PyTorch is extremely powerful and yet easy to learn. It provides advanced features, such as supporting multiprocessor, distributed, and parallel computation. This book is an excellent entry point for those wanting to explore deep learning with PyTorch to harness its power. This book will introduce you to the PyTorch deep learning library and teach you how to train deep learning models without any hassle. We will set up the deep learning environment using PyTorch, and then train and deploy different types of deep learning models, such as CNN, RNN, and autoencoders. You will learn how to optimize models by tuning hyperparameters and how to use PyTorch in multiprocessor and distributed environments. We will discuss long short-term memory network (LSTMs) and build a language model to predict text. By the end of this book, you will be familiar with PyTorch's capabilities and be able to utilize the library to train your neural networks with relative ease. What you will learnSet up the deep learning environment using the PyTorch libraryLearn to build a deep learning model for image classificationUse a convolutional neural network for

transfer learning Understand to use PyTorch for natural language processing Use a recurrent neural network to classify text Understand how to optimize PyTorch in multiprocessor and distributed environments Train, optimize, and deploy your neural networks for maximum accuracy and performance Learn to deploy production-ready models Who this book is for Developers and Data Scientist familiar with Machine Learning but new to deep learning, or existing practitioners of deep learning who would like to use PyTorch to train their deep learning models will find this book to be useful. Having knowledge of Python programming will be an added advantage, while previous exposure to PyTorch is not needed.

Neural Network Programming with TensorFlow Manpreet Singh Ghotra 2017-11-10 Neural Networks and their implementation decoded with TensorFlow About This Book Develop a strong background in neural network programming from scratch, using the popular Tensorflow library. Use Tensorflow to implement different kinds of neural networks - from simple feedforward neural networks to multilayered perceptrons, CNNs, RNNs and more. A highly practical guide including real-world datasets and use-cases to simplify your understanding of neural networks and their implementation. Who This Book Is For This book is meant for developers with a statistical background who want to work with neural networks. Though we will be using TensorFlow as the underlying library for neural networks, book can be used as a generic resource to bridge the gap between the math and the implementation of deep learning. If you have some understanding of Tensorflow and Python and want to learn what happens at a level lower than the plain API syntax, this book is for you. What You Will Learn Learn Linear Algebra and mathematics behind neural network. Dive deep into Neural networks from the basic to advanced concepts like CNN, RNN Deep Belief Networks, Deep Feedforward Networks. Explore Optimization techniques for solving problems like Local minima, Global minima, Saddle points Learn through real world examples like Sentiment Analysis. Train different types of generative models and explore autoencoders. Explore TensorFlow as an example of deep learning implementation. In Detail If you're aware of the buzz surrounding the terms such as "machine learning," "artificial intelligence," or "deep learning," you might know what neural networks are. Ever wondered how they help in solving complex computational problem efficiently, or how to train efficient neural networks? This book will teach you just that. You will start by getting a quick overview of the popular TensorFlow library and how it is used to train different neural networks. You will get a thorough understanding of the fundamentals and basic math for neural networks and why TensorFlow is a popular choice Then, you will proceed to implement a simple feed forward neural network. Next you will master optimization techniques and algorithms for neural networks using TensorFlow. Further, you will learn to implement some more complex types of neural networks such as convolutional neural networks, recurrent neural networks, and Deep Belief Networks. In the course of the book, you will be working on real-world datasets to get a hands-on understanding of neural network programming. You will also get to train generative models and will learn the applications of autoencoders. By the end of this book, you will have a fair understanding of how you can leverage the power of TensorFlow to train neural networks of varying complexities, without any hassle. While you are learning about various neural network implementations you will learn the underlying mathematics and linear algebra and how they map to the appropriate TensorFlow constructs. Style and Approach This book is designed to give you just the right number of concepts to back up the examples. With real-world use cases and problems solved, this book is a handy guide for you. Each concept is backed by a generic and real-world problem, followed by a variation, making you independent and able to solve any problem with neural networks. All of the content is demystified by a simple and straightforward approach.

Neural Network for Beginners Sebastian Klaas 2021-08-24 KEY FEATURES ● Understand applications like reinforcement learning, automatic driving and image generation. ● Understand neural networks accompanied with figures and charts. ● Learn about determining coefficients and initial values of weights. DESCRIPTION Deep learning helps you solve issues related to data problems as it has a vast array of mathematical algorithms and has capacity to detect patterns. This book starts with a quick view of deep learning in Python which would include definition, features and applications. You would be learning about perceptron, neural networks, Backpropagation. This book would also give you a clear insight of how to use Numpy and Matplotlib in deep learning models. By the end of the book, you'll have the knowledge to apply the relevant technologies in deep learning. WHAT YOU WILL LEARN ● To develop deep learning applications, use Python with few outside inputs. ● Study several ideas of profound learning and neural networks ● Learn

*Neural Network Programming With Python Create Your Own Neural Network Pdf upload
Jason d Ferguson*

how to determine coefficients of learning and weight values ● Explore applications such as automation, image generation and reinforcement learning ● Implement trends like batch Normalisation, dropout, and Adam WHO THIS BOOK IS FOR Deep Learning from the Basics is for data scientists, data analysts and developers who wish to build efficient solutions by applying deep learning techniques. Individuals who would want a better grasp of technology and an overview. You should have a workable Python knowledge is a required. NumPy knowledge and pandas will be an advantage, but that's completely optional. TABLE OF CONTENTS 1. Python Introduction 2. Perceptron in Depth 3. Neural Networks 4. Training Neural Network 5. Backpropagation 6. Neural Network Training Techniques 7. CNN 8. Deep Learning

Data Science Programming All-in-One For Dummies John Paul Mueller 2020-01-09 Your logical, linear guide to the fundamentals of data science programming Data science is exploding—in a good way—with a forecast of 1.7 megabytes of new information created every second for each human being on the planet by 2020 and 11.5 million job openings by 2026. It clearly pays dividends to be in the know. This friendly guide charts a path through the fundamentals of data science and then delves into the actual work: linear regression, logical regression, machine learning, neural networks, recommender engines, and cross-validation of models. Data Science Programming All-In-One For Dummies is a compilation of the key data science, machine learning, and deep learning programming languages: Python and R. It helps you decide which programming languages are best for specific data science needs. It also gives you the guidelines to build your own projects to solve problems in real time. Get grounded: the ideal start for new data professionals What lies ahead: learn about specific areas that data is transforming Be meaningful: find out how to tell your data story See clearly: pick up the art of visualization Whether you're a beginning student or already mid-career, get your copy now and add even more meaning to your life—and everyone else's!

Deep Learning with Python Mark Graph 2019-10-15 This book doesn't have any superpowers or magic formula to help you master the art of neural networks and deep learning. We believe that such learning is all in your heart. You need to learn a concept by heart and then brainstorm its different possibilities. I don't claim that after reading this book you will become an expert in Python and Deep Learning Neural Networks. Instead, you will, for sure, have a basic understanding of deep learning and its implications and real-life applications. Most of the time, what confuses us is the application of a certain thing in our lives. Once we know that, we can relate the subject to that particular thing and learn. An interesting thing is that neural networks also learn the same way. This makes it easier to learn about them when we know the basics. Let's take a look at what this book has to offer: ● The basics of Python including data types, operators and numbers. ● Advanced programming in Python with Python expressions, types and much more. ● A comprehensive overview of deep learning and its link to the smart systems that we are now building. ● An overview of how artificial neural networks work in real life. ● An overview of PyTorch. ● An overview of TensorFlow. ● An overview of Keras. ● How to create a convolutional neural network. ● A comprehensive understanding of deep learning applications and its ethical implications, including in the present and future. This book offers you the basic knowledge about Python and Deep Learning Neural Networks that you will need to lay the foundation for future studies. This book will start you on the road to mastering the art of deep learning neural networks. When I say that I don't have the magic formula to make you learn, I mean it. My point is that you should learn Python coding and Python libraries to build neural networks by practicing hard. The more you practice, the better it is for your skills. It is only after thorough and in depth practice that you will be able to create your own programs. Unlike other books, I don't claim that this book will make you a master of deep learning after a single read. That's not realistic, in fact, it's even a bit absurd. What I claim is that you will definitely learn about the basics. The rest is practice. The more you practice the better you code.

Introduction to Deep Learning Sandro Skansi 2018-02-04 This textbook presents a concise, accessible and engaging first introduction to deep learning, offering a wide range of connectionist models which represent the current state-of-the-art. The text explores the most popular algorithms and architectures in a simple and intuitive style, explaining the mathematical derivations in a step-by-step manner. The content coverage includes convolutional networks, LSTMs, Word2vec, RBMs, DBNs, neural Turing machines, memory networks and autoencoders. Numerous examples in working Python code are provided throughout the book, and the code is also supplied separately at an accompanying website. Topics and features: introduces the

fundamentals of machine learning, and the mathematical and computational prerequisites for deep learning; discusses feed-forward neural networks, and explores the modifications to these which can be applied to any neural network; examines convolutional neural networks, and the recurrent connections to a feed-forward neural network; describes the notion of distributed representations, the concept of the autoencoder, and the ideas behind language processing with deep learning; presents a brief history of artificial intelligence and neural networks, and reviews interesting open research problems in deep learning and connectionism. This clearly written and lively primer on deep learning is essential reading for graduate and advanced undergraduate students of computer science, cognitive science and mathematics, as well as fields such as linguistics, logic, philosophy, and psychology.

Deep Learning Patterns and Practices Andrew Ferlitsch 2021-10-12 Discover best practices, reproducible architectures, and design patterns to help guide deep learning models from the lab into production. In *Deep Learning Patterns and Practices* you will learn: Internal functioning of modern convolutional neural networks Procedural reuse design pattern for CNN architectures Models for mobile and IoT devices Assembling large-scale model deployments Optimizing hyperparameter tuning Migrating a model to a production environment The big challenge of deep learning lies in taking cutting-edge technologies from R&D labs through to production. *Deep Learning Patterns and Practices* is here to help. This unique guide lays out the latest deep learning insights from author Andrew Ferlitsch's work with Google Cloud AI. In it, you'll find deep learning models presented in a unique new way: as extendable design patterns you can easily plug-and-play into your software projects. Each valuable technique is presented in a way that's easy to understand and filled with accessible diagrams and code samples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Discover best practices, design patterns, and reproducible architectures that will guide your deep learning projects from the lab into production. This awesome book collects and illuminates the most relevant insights from a decade of real world deep learning experience. You'll build your skills and confidence with each interesting example. About the book *Deep Learning Patterns and Practices* is a deep dive into building successful deep learning applications. You'll save hours of trial-and-error by applying proven patterns and practices to your own projects. Tested code samples, real-world examples, and a brilliant narrative style make even complex concepts simple and engaging. Along the way, you'll get tips for deploying, testing, and maintaining your projects. What's inside Modern convolutional neural networks Design pattern for CNN architectures Models for mobile and IoT devices Large-scale model deployments Examples for computer vision About the reader For machine learning engineers familiar with Python and deep learning. About the author Andrew Ferlitsch is an expert on computer vision, deep learning, and operationalizing ML in production at Google Cloud AI Developer Relations. Table of Contents PART 1 DEEP LEARNING FUNDAMENTALS 1 Designing modern machine learning 2 Deep neural networks 3 Convolutional and residual neural networks 4 Training fundamentals PART 2 BASIC DESIGN PATTERN 5 Procedural design pattern 6 Wide convolutional neural networks 7 Alternative connectivity patterns 8 Mobile convolutional neural networks 9 Autoencoders PART 3 WORKING WITH PIPELINES 10 Hyperparameter tuning 11 Transfer learning 12 Data distributions 13 Data pipeline 14 Training and deployment pipeline

Python Deep Learning Projects Matthew Lamons 2018-10-31 Insightful projects to master deep learning and neural network architectures using Python and Keras Key FeaturesExplore deep learning across computer vision, natural language processing (NLP), and image processingDiscover best practices for the training of deep neural networks and their deploymentAccess popular deep learning models as well as widely used neural network architecturesBook Description Deep learning has been gradually revolutionizing every field of artificial intelligence, making application development easier. *Python Deep Learning Projects* imparts all the knowledge needed to implement complex deep learning projects in the field of computational linguistics and computer vision. Each of these projects is unique, helping you progressively master the subject. You'll learn how to implement a text classifier system using a recurrent neural network (RNN) model and optimize it to understand the shortcomings you might experience while implementing a simple deep learning system. Similarly, you'll discover how to develop various projects, including word vector representation, open domain question answering, and building chatbots using seq-to-seq models and language modeling. In addition to this, you'll cover advanced concepts, such as regularization, gradient

clipping, gradient normalization, and bidirectional RNNs, through a series of engaging projects. By the end of this book, you will have gained knowledge to develop your own deep learning systems in a straightforward way and in an efficient way What you will learnSet up a deep learning development environment on Amazon Web Services (AWS)Apply GPU-powered instances as well as the deep learning AMIImplement seq-to-seq networks for modeling natural language processing (NLP)Develop an end-to-end speech recognition systemBuild a system for pixel-wise semantic labeling of an imageCreate a system that generates images and their regionsWho this book is for *Python Deep Learning Projects* is for you if you want to get insights into deep learning, data science, and artificial intelligence. This book is also for those who want to break into deep learning and develop their own AI projects. It is assumed that you have sound knowledge of Python programming

Deep Learning for Coders with fastai and PyTorch Jeremy Howard 2020-06-29 Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With *fastai*, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of *fastai*, show you how to train a model on a wide range of tasks using *fastai* and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering Learn the latest deep learning techniques that matter most in practice Improve accuracy, speed, and reliability by understanding how deep learning models work Discover how to turn your models into web applications Implement deep learning algorithms from scratch Consider the ethical implications of your work Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

Neural Network Programming With Python Max Sharp 2016-10-18 This book is a guide on how to implement a neural network in the Python programming language. It begins by giving you a brief overview of neural networks so as to know what they are, where they are used, and how they are implemented. The next step is an exploration of the backpropagation algorithm. This is the algorithm behind the functionality of neural networks, and it involves a forward and backward pass. NumPy is a Python library which can be used for the purpose of implementation of a neural network. This library is discussed in this book, and you are guided on how to use it for that purpose. The functionality of neural networks has to be improved. The various ways to improve how a neural network works is also explored. You are then guided on how to implement neural networks with Neupy, another Python library. The following topics are discussed in this book: - A Brief Overview of Neural Networks - Backpropagation Algorithm - Neural Networks with Numpy - Improving a Neural Network in Python - Neupy - Models in Neural Networks

Python All-in-One For Dummies John C. Shovic 2021-03-29 The one-stop resource for all your Python queries Powerful and flexible, Python is one of the most popular programming languages in the world. It's got all the right stuff for the software driving the cutting-edge of the development world—machine learning, robotics, artificial intelligence, data science, etc. The good news is that it's also pretty straightforward to learn, with a simplified syntax, natural-language flow, and an amazingly supportive user community. The latest edition of *Python All-in-One For Dummies* gives you an inside look at the exciting possibilities offered in the Python world and provides a springboard to launch yourself into wherever you want your coding career to take you. These 7 straightforward and friendly mini-books assume the reader is a beginning programmer, and cover everything from the basic elements of Python code to introductions to the specific applications where you'll use it. Intended as a hands-on reference, the focus is on practice over theory, providing you with examples to follow as well as code for you to copy and start modifying in the "real world"—helping you get up and running in your area of interest almost right away. This means you'll be finishing off your first app or building and remote-controlling your own robot much faster than you can believe. Get a thorough grounding in the language basics Learn how the syntax is applied in high-profile industries Apply Python to projects in enterprise Find out how Python can get you into hot careers in AI, big data, and more Whether you're a newbie coder or just want to add Python to your magic box of tricks, this is the perfect, practical introduction—and one you'll return to as you grow your career.

Neural Network Programming with Python Fabio M. Soares 2017-04-28 Build smarter programs with the power of neural networks and the simplicity of Python About This Book* Make your roots stronger in neural networks by this concept-rich yet highly practical guide; from single layer to multiple layers with the help of Python* Through this book, you will develop a strong background in neural networks, regardless of your level of previous knowledge in this subject* You will be able to implement solutions from scratch, so the whole process on foundations of neural network solution design will be paced by you Who This Book Is For This book is designed for novices as well as intermediate Python developers who have a statistical background and want to work with neural networks to get better results from complex data. It also contains enough food for thought for those who want to improve their skills in machine learning and deep learning. What You Will Learn* See the latest innovations in the field* Become fluent in Python to develop neural networks solutions capable of solving complex and interesting tasks* Implement neural networks step-by-step* Solve your complex computational problems with the aid of neural networks and Python* The reader will be able to set up his/her neural network with ease, according to the objective he/she wants to apply.* The reader will be able to design time series based models using RNNs in Python.* Will be able to design high level solutions with CNNs in Python In Detail If you wish to solve your complex computational problem efficiently, neural networks come to the rescue. This book will teach you how to ace neural networks and solve your computational problems with Python-right from predicting to self-learning models-with ease. We start off with neural network design, then you'll build a solid foundational knowledge of how a neural network learns from data, and the principles behind it. This book cover various types of neural networks including recurrent neural networks and convoluted neural networks. You will not only learn how to train neural networks, but also see a generalization of these networks. With the help of practical examples and real-world use cases, you will learn to implement these neural networks in your applications.

Neural Network Programming with Java - Second Edition Alan M. F. Souza 2017-02-28 Create and unleash the power of neural networks by implementing professional, clean, and clear Java code About This Book* Learn to build amazing projects using neural networks including forecasting the weather and pattern recognition* Explore the Java multi-platform feature to run your personal neural networks everywhere* This step-by-step guide will help you solve real-world problems and links neural network theory to their application Who This Book Is For This book is for Java developers who want to know how to develop smarter

applications using the power of neural networks. Those who deal with a lot of complex data and want to use it efficiently in their day-to-day apps will find this book quite useful. Some basic experience with statistical computations is expected. What You Will Learn* Develop an understanding of neural networks and how they can be fitted* Explore the learning process of neural networks* Build neural network applications with Java using hands-on examples* Discover the power of neural network's unsupervised learning process to extract the intrinsic knowledge hidden behind the data* Apply the code generated in practical examples, including weather forecasting and pattern recognition* Understand how to make the best choice of learning parameters to ensure you have a more effective application* Select and split data sets into training, test, and validation, and explore validation strategies In Detail Want to discover the current state-of-art in the field of neural networks that will let you understand and design new strategies to apply to more complex problems? This book takes you on a complete walkthrough of the process of developing basic to advanced practical examples based on neural networks with Java, giving you everything you need to stand out. You will first learn the basics of neural networks and their process of learning. We then focus on what Perceptrons are and their features. Next, you will implement self-organizing maps using practical examples. Further on, you will learn about some of the applications that are presented in this book such as weather forecasting, disease diagnosis, customer profiling, generalization, extreme machine learning, and characters recognition (OCR). Finally, you will learn methods to optimize and adapt neural networks in real time. All the examples generated in the book are provided in the form of illustrative source code, which merges object-oriented programming (OOP) concepts and neural network features to enhance your learning experience. *Deep Learning For Dummies* John Paul Mueller 2019-05-14 Take a deep dive into deep learning Deep learning provides the means for discerning patterns in the data that drive online business and social media outlets. Deep Learning for Dummies gives you the information you need to take the mystery out of the topic—and all of the underlying technologies associated with it. In no time, you'll make sense of those increasingly confusing algorithms, and find a simple and safe environment to experiment with deep learning. The book develops a sense of precisely what deep learning can do at a high level and then provides examples of the major deep learning application types. Includes sample code Provides real-world examples within the approachable text Offers hands-on activities to make learning easier Shows you how to use Deep Learning more effectively with the right tools This book is perfect for those who want to better understand the basis of the underlying technologies that we use each and every day.