

Free pdf Neural network training using genetic algorithms series in machine perception and artificial intelligence (2023)

Hands-On Neural Networks DEEP LEARNING with MATLAB. NEURAL NETWORKS by EXAMPLES Neural Network for Beginners Machine Learning with Neural Networks Using MATLAB Learning Deep Learning Neural Network Architectures. Examples Using MATLAB Neural Network Projects with Python Neural Network Data Analysis Using Simulnet™ Hands-On Convolutional Neural Networks with TensorFlow Neural Networks with R Neural Network Programming with TensorFlow Neural Networks Time Series Using Matlab ADVANCED TOPICS IN NEURAL NETWORKS WITH MATLAB. PARALLEL COMPUTING, OPTIMIZE AND TRAINING Guide to Convolutional Neural Networks Introduction to Deep Learning and Neural Networks with Python™ Practical Convolutional Neural Networks Recurrent Neural Networks with Python Quick Start Guide Deep Learning Python Deep Learning Python Deep Learning Cookbook Network Intrusion Detection using Deep Learning Programming With Python Hands-On Transfer Learning with Python Time Series Forecasting using Deep Learning Deep Learning with R for Beginners Elements of Artificial Neural Networks Deep Learning with PyTorch Hands-On Deep Learning with TensorFlow Advanced Deep Learning with Python Advanced Neural Networks With Matlab Applied Artificial Intelligence Hands-On Neural Networks with Keras Introduction to Deep Learning and Neural Networks with Python™ Deep Learning for Computer Vision Deep Learning with Microsoft Cognitive Toolkit Quick Start Guide Deep Learning: Practical Neural Networks with Java Hands-On Deep Learning with Go Introduction to Neural Networks with Java PREDICTIVE ANALYTICS with NEURAL NETWORKS Using MATLAB Deep Learning with PyTorch

Hands-On Neural Networks

2019-05-30

design and create neural networks with deep learning and artificial intelligence principles using openai gym tensorflow and keras key features explore neural network architecture and understand how it functions learn algorithms to solve common problems using back propagation and perceptrons understand how to apply neural networks to applications with the help of useful illustrations book description neural networks play a very important role in deep learning and artificial intelligence ai with applications in a wide variety of domains right from medical diagnosis to financial forecasting and even machine diagnostics hands on neural networks is designed to guide you through learning about neural networks in a practical way the book will get you started by giving you a brief introduction to perceptron networks you will then gain insights into machine learning and also understand what the future of ai could look like next you will study how embeddings can be used to process textual data and the role of long short term memory networks lstms in helping you solve common natural language processing nlp problems the later chapters will demonstrate how you can implement advanced concepts including transfer learning generative adversarial networks gans autoencoders and reinforcement learning finally you can look forward to further content on the latest advancements in the field of neural networks by the end of this book you will have the skills you need to build train and optimize your own neural network model that can be used to provide predictable solutions what you will learn learn how to train a network by using backpropagation discover how to load and transform images for use in neural networks study how neural networks can be applied to a varied set of applications solve common challenges faced in neural network development understand the transfer learning concept to solve tasks using keras and visual geometry group vgg network get up to speed with advanced and complex deep learning concepts like lstms and nlp explore innovative algorithms like gans and deep reinforcement learning who this book is for if you are interested in artificial intelligence and deep learning and want to further your skills then this intermediate level book is for you some knowledge of statistics will help you get the most out of this book

DEEP LEARNING with MATLAB. NEURAL NETWORKS by EXAMPLES

2020-09-13

matlab has the tool deep learning toolbox that provides algorithms functions and apps to create train visualize and simulate neural networks you can perform classification regression clustering dimensionality reduction time series forecasting and dynamic system modeling and control the toolbox includes convolutional neural network and autoencoder deep learning algorithms for image classification and feature learning tasks to speed up training of large data sets big data you can distribute computations and data across multicore processors gpu and computer clusters using parallel computing toolbox

Neural Network for Beginners

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 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

Machine Learning with Neural Networks Using MATLAB

2017-02-27

machine learning is a method used to devise complex models and algorithms that lend themselves to prediction in commercial use this is known as predictive analytics these analytical models allow researchers data scientists engineers and analysts to produce reliable repeatable decisions and results and uncover hidden insights through learning from historical relationships and trends in the data matlab has the tool neural network toolbox that provides algorithms functions and apps to create train visualize and simulate neural networks you can perform classification regression clustering dimensionality reduction time series forecasting dynamic system modeling and control and most machine learning techniques the toolbox includes convolutional neural network and autoencoder deep learning algorithms for image classification and feature learning tasks to speed up training of large data sets you can distribute computations and data across multicore processors gpus and computer clusters using parallel computing toolbox the more important features are the following deep learning including convolutional neural networks and autoencoders parallel computing and gpu support for accelerating training with parallel computing toolbox supervised learning algorithms including multilayer radial basis learning vector quantization lvq time delay nonlinear autoregressive narx and recurrent neural network rnn unsupervised learning algorithms including self organizing maps and competitive layers apps for data fitting pattern recognition and clustering preprocessing postprocessing and network visualization for improving training efficiency and assessing network performance simulink r blocks for building and evaluating neural networks and for control systems applications

Learning Deep Learning

2021-07-19

nvidia s full color guide to deep learning all you need to get started and get results to enable everyone to be part of this historic revolution requires the democratization of ai knowledge and resources this book is timely and relevant towards accomplishing these lofty goals from the foreword by dr anima anandkumar bren professor caltech and director of ml research nvidia ekman uses a learning technique that in our experience has proven pivotal to success asking the reader to think about using dl techniques in practice his straightforward approach is refreshing and he permits the reader to dream just a bit about where dl may yet take us from the foreword by dr craig clawson director nvidia deep learning institute deep learning dl is a key component of today s exciting advances in machine learning and artificial intelligence learning deep learning is a complete guide to dl illuminating both the core concepts and the hands on programming techniques needed to succeed this book is ideal for developers data scientists analysts and others including those with no prior machine learning or statistics experience after introducing the essential building blocks of deep neural networks such as artificial neurons and fully connected convolutional and recurrent

layers magnus ekman shows how to use them to build advanced architectures including the transformer he describes how these concepts are used to build modern networks for computer vision and natural language processing nlp including mask r cnn gpt and bert and he explains how a natural language translator and a system generating natural language descriptions of images throughout ekman provides concise well annotated code examples using tensorflow with keras corresponding pytorch examples are provided online and the book thereby covers the two dominating python libraries for dl used in industry and academia he concludes with an introduction to neural architecture search nas exploring important ethical issues and providing resources for further learning explore and master core concepts perceptrons gradient based learning sigmoid neurons and back propagation see how dl frameworks make it easier to develop more complicated and useful neural networks discover how convolutional neural networks cnns revolutionize image classification and analysis apply recurrent neural networks rnns and long short term memory lstm to text and other variable length sequences master nlp with sequence to sequence networks and the transformer architecture build applications for natural language translation and image captioning nvidia s invention of the gpu sparked the pc gaming market the company s pioneering work in accelerated computing a supercharged form of computing at the intersection of computer graphics high performance computing and ai is reshaping trillion dollar industries such as transportation healthcare and manufacturing and fueling the growth of many others register your book for convenient access to downloads updates and or corrections as they become available see inside book for details

Neural Network Architectures. Examples Using MATLAB

2017-02-26

matlab has the tool neural network toolbox that provides algorithms functions and apps to create train visualize and simulate neural networks you can perform classification regression clustering dimensionality reduction time series forecasting and dynamic system modeling and control the toolbox includes convolutional neural network and autoencoder deep learning algorithms for image classification and feature learning tasks to speed up training of large data sets you can distribute computations and data across multicore processors gpus and computer clusters using parallel computing toolbox the more important features are the following deep learning including convolutional neural networks and autoencoders parallel computing and gpu support for accelerating training with parallel computing toolbox supervised learning algorithms including multilayer radial basis learning vector quantization lvq time delay nonlinear autoregressive narx and recurrent neural network rnn unsupervised learning algorithms including self organizing maps and competitive layers apps for data fitting pattern recognition and clustering preprocessing postprocessing and network visualization for improving training efficiency and assessing network performance simulink r blocks for building and evaluating neural networks and for control systems applications neural networks are composed of simple elements operating in parallel these elements are inspired by biological nervous systems as in nature the connections between elements largely determine the network function you can train a neural network to perform a particular function by adjusting the values of the connections weights between elements

Neural Network Projects with Python

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 aimaster deep learning in python by building and training neural networkmaster neural networks for regression and classificationdiscover convolutional neural networks for image recognitionlearn sentiment analysis on textual data using long short term memorybuild and train a highly accurate facial recognition security systemwho 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

Neural Network Data Analysis Using Simulnet™

2012-12-06

this book and software package complements the traditional data analysis tools already widely available it presents an introduction to the analysis of data using neural network functions such as multilayer feed forward networks using error back propagation genetic algorithm neural network hybrids generalised regression neural networks learning quantizer networks and self organising feature maps in an easy to use windows based environment it offers a wide range of data analytic tools which are not usually found together genetic algorithms probabilistic networks as well as a number of related techniques that support these readers are assumed to have a basic understanding of computers and elementary mathematics allowing them to quickly conduct sophisticated hands on analyses of data sets

Hands-On Convolutional Neural Networks with TensorFlow

2018-08-28

learn how to apply tensorflow to a wide range of deep learning and machine learning problems with this practical guide on training cns for image classification image recognition object detection and many computer vision challenges key features learn the fundamentals of convolutional neural networks harness python and tensorflow to train cns build scalable deep learning models that can process millions of items book description convolutional neural networks cnn are one of the most popular architectures used in computer vision apps this book is an introduction to cns through solving real world problems in deep learning while teaching you their implementation in popular python library tensorflow by the end of the book you will be training cns in no time we start with an overview of popular machine learning and deep learning models and then get you set up with a tensorflow development environment this environment is the basis for implementing and training deep learning models in later chapters then you will use convolutional neural networks to work on problems such as image classification object detection and semantic segmentation after that you will use transfer learning to see how these models can solve other deep learning problems you will also get a taste of implementing generative models such as autoencoders and generative adversarial networks later on you will see useful tips on machine learning best practices and troubleshooting finally you will learn how to apply your models on large datasets of millions of images what you will learn train machine learning models with tensorflow create systems that can evolve and scale during their

life cycle use cnns in image recognition and classification use tensorflow for building deep learning models train popular deep learning models fine tune a neural network to improve the quality of results with transfer learning build tensorflow models that can scale to large datasets and systems who this book is for this book is for software engineers data scientists or machine learning practitioners who want to use cnns for solving real world problems knowledge of basic machine learning concepts linear algebra and python will help

Neural Networks with R

2017-09-27

uncover the power of artificial neural networks by implementing them through r code about this book develop a strong background in neural networks with r to implement them in your applications build smart systems using the power of deep learning real world case studies to illustrate the power of neural network models who this book is for this book is intended for anyone who has a statistical background with knowledge in r and wants to work with neural networks to get better results from complex data if you are interested in artificial intelligence and deep learning and you want to level up then this book is what you need what you will learn set up r packages for neural networks and deep learning understand the core concepts of artificial neural networks understand neurons perceptrons bias weights and activation functions implement supervised and unsupervised machine learning in r for neural networks predict and classify data automatically using neural networks evaluate and fine tune the models you build in detail neural networks are one of the most fascinating machine learning models for solving complex computational problems efficiently neural networks are used to solve wide range of problems in different areas of ai and machine learning this book explains the niche aspects of neural networking and provides you with foundation to get started with advanced topics the book begins with neural network design using the neural net package then you ll build a solid foundation knowledge of how a neural network learns from data and the principles behind it this book covers various types of neural network including recurrent neural networks and convoluted neural networks you will not only learn how to train neural networks but will also explore generalization of these networks later we will delve into combining different neural network models and work with the real world use cases by the end of this book you will learn to implement neural network models in your applications with the help of practical examples in the book style and approach a step by step guide filled with real world practical examples

Neural Network Programming with TensorFlow

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 are 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 Networks Time Series Using Matlab

2017-02-19

matlab has the tool neural network toolbox that provides algorithms functions and apps to create train visualize and simulate neural networks you can perform classification regression clustering dimensionality reduction time series forecasting and dynamic system modeling and control the toolbox includes convolutional neural network and autoencoder deep learning algorithms for image classification and feature learning tasks to speed up training of large data sets you can distribute computations and data across multicore processors gpus and computer clusters using parallel computing toolbox the more important features are the following deep learning including convolutional neural networks and autoencoders parallel computing and gpu support for accelerating training with parallel computing toolbox supervised learning algorithms including multilayer radial basis learning vector quantization lvq time delay nonlinear autoregressive narx and recurrent neural network rnn unsupervised learning algorithms including self organizing maps and competitive layers apps for data fitting pattern recognition and clustering preprocessing postprocessing and network visualization for improving training efficiency and assessing network performance simulink r blocks for building and evaluating neural networks and for control systems applications this book develops neural networkd time series using matlab

ADVANCED TOPICS IN NEURAL NETWORKS WITH MATLAB. PARALLEL COMPUTING, OPTIMIZE AND TRAINING

2023-12-13

neural networks are inherently parallel algorithms multicore cpus graphical processing units gpus and clusters of computers with multiple cpus and gpus can take advantage of this parallelism parallel computing toolbox when used in conjunction with neural network toolbox enables neural network training and simulation to take advantage of each mode of parallelism parallel computing toolbox allows neural network training and simulation to run across multiple cpu cores on a single pc or across multiple cpus on

multiple computers on a network using matlab distributed computing server using multiple cores can speed calculations using multiple computers can allow you to solve problems using data sets too big to fit in the ram of a single computer the only limit to problem size is the total quantity of ram available across all computers distributed and gpu computing can be combined to run calculations across multiple cpus and or gpus on a single computer or on a cluster with matlab distributed computing server it is desirable to determine the optimal regularization parameters in an automated fashion one approach to this process is the bayesian framework in this framework the weights and biases of the network are assumed to be random variables with specified distributions the regularization parameters are related to the unknown variances associated with these distributions you can then estimate these parameters using statistical techniques it is very difficult to know which training algorithm will be the fastest for a given problem it depends on many factors including the complexity of the problem the number of data points in the training set the number of weights and biases in the network the error goal and whether the network is being used for pattern recognition discriminant analysis or function approximation regression this book compares the various training algorithms one of the problems that occur during neural network training is called overfitting the error on the training set is driven to a very small value but when new data is presented to the network the error is large the network has memorized the training examples but it has not learned to generalize to new situations this book develops the following topics neural networks with parallel and gpu computing deep learning optimize neural network training speed and memory improve neural network generalization and avoid overfitting create and train custom neural network architectures deploy training of neural networks perceptron neural networks linear neural networks hopfield neural network neural network object reference neural network simulink block library deploy neural network simulink diagrams

Guide to Convolutional Neural Networks

2017-05-17

this must read text reference introduces the fundamental concepts of convolutional neural networks convnets offering practical guidance on using libraries to implement convnets in applications of traffic sign detection and classification the work presents techniques for optimizing the computational efficiency of convnets as well as visualization techniques to better understand the underlying processes the proposed models are also thoroughly evaluated from different perspectives using exploratory and quantitative analysis topics and features explains the fundamental concepts behind training linear classifiers and feature learning discusses the wide range of loss functions for training binary and multi class classifiers illustrates how to derive convnets from fully connected neural networks and reviews different techniques for evaluating neural networks presents a practical library for implementing convnets explaining how to use a python interface for the library to create and assess neural networks describes two real world examples of the detection and classification of traffic signs using deep learning methods examines a range of varied techniques for visualizing neural networks using a python interface provides self study exercises at the end of each chapter in addition to a helpful glossary with relevant python scripts supplied at an associated website this self contained guide will benefit those who seek to both understand the theory behind deep learning and to gain hands on experience in implementing convnets in practice as no prior background knowledge in the field is required to follow the material the book is ideal for all students of computer vision and machine learning and will also be of great interest to practitioners working on autonomous cars and advanced driver assistance systems

Introduction to Deep Learning and Neural Networks with Python™

2020-11-25

introduction to deep learning and neural networks with python a practical guide is an intensive step by step guide for neuroscientists to fully understand practice and build neural networks providing math and python code examples to clarify neural network calculations by book s end readers will fully understand how neural networks work starting from the simplest model $y = x$ and building from scratch details and explanations are provided on how a generic gradient descent algorithm works based on mathematical and python examples teaching you how to use the gradient descent algorithm to manually perform all calculations in both the forward and backward passes of training a neural network examines the practical side of deep learning and neural networks provides a problem based approach to building artificial neural networks using real data describes python functions and features for neuroscientists uses a careful tutorial approach to describe implementation of neural networks in python features math and code examples via companion website with helpful instructions for easy implementation

Practical Convolutional Neural Networks

2018-02-27

one stop guide to implementing award winning and cutting edge cnn architectures key features fast paced guide with use cases and real world examples to get well versed with cnn techniques implement cnn models on image classification transfer learning object detection instance segmentation gans and more implement powerful use cases like image captioning reinforcement learning for hard attention and recurrent attention models book description convolutional neural network cnn is revolutionizing several application domains such as visual recognition systems self driving cars medical discoveries innovative ecommerce and more you will learn to create innovative solutions around image and video analytics to solve complex machine learning and computer vision related problems and implement real life cnn models this book starts with an overview of deep neural networks with the example of image classification and walks you through building your first cnn for human face detector we will learn to use concepts like transfer learning with cnn and auto encoders to build very powerful models even when not much of supervised training data of labeled images is available later we build upon the learning achieved to build advanced vision related algorithms for object detection instance segmentation generative adversarial networks image captioning attention mechanisms for vision and recurrent models for vision by the end of this book you should be ready to implement advanced effective and efficient cnn models at your professional project or personal initiatives by working on complex image and video datasets what you will learn from cnn basic building blocks to advanced concepts understand practical areas they can be applied to build an image classifier cnn model to understand how different components interact with each other and then learn how to optimize it learn different algorithms that can be applied to object detection and instance segmentation learn advanced concepts like attention mechanisms for cnn to improve prediction accuracy understand transfer learning and implement award winning cnn architectures like alexnet vgg googlenet resnet and more understand the working of generative adversarial networks and how it can create new unseen images who this book is for this book is for data scientists machine learning and deep learning practitioners cognitive and artificial intelligence enthusiasts who want to move one step further in building convolutional neural networks get hands on experience with extreme datasets and different cnn architectures to build efficient and smart convnet models basic knowledge of deep learning concepts and python programming language is expected

Recurrent Neural Networks with Python Quick Start Guide

2018-11-30

learn how to develop intelligent applications with sequential learning and apply modern methods for language modeling with neural network architectures for deep learning with python s most popular tensorflow framework key features train and deploy recurrent

neural networks using the popular tensorflow library apply long short term memory unit expand your skills in complex neural network and deep learning topics book description developers struggle to find an easy to follow learning resource for implementing recurrent neural network rnn models rnns are the state of the art model in deep learning for dealing with sequential data from language translation to generating captions for an image rnns are used to continuously improve results this book will teach you the fundamentals of rnns with example applications in python and the tensorflow library the examples are accompanied by the right combination of theoretical knowledge and real world implementations of concepts to build a solid foundation of neural network modeling your journey starts with the simplest rnn model where you can grasp the fundamentals the book then builds on this by proposing more advanced and complex algorithms we use them to explain how a typical state of the art rnn model works from generating text to building a language translator we show how some of today s most powerful ai applications work under the hood after reading the book you will be confident with the fundamentals of rnns and be ready to pursue further study along with developing skills in this exciting field what you will learn use tensorflow to build rnn models use the correct rnn architecture for a particular machine learning task collect and clear the training data for your models use the correct python libraries for any task during the building phase of your model optimize your model for higher accuracy identify the differences between multiple models and how you can substitute them learn the core deep learning fundamentals applicable to any machine learning model who this book is for this book is for machine learning engineers and data scientists who want to learn about recurrent neural network models with practical use cases exposure to python programming is required previous experience with tensorflow will be helpful but not mandatory

Deep Learning

2020-08-14

deep learning 2 book bundle deep learning with keras this book will introduce you to various supervised and unsupervised deep learning algorithms like the multilayer perceptron linear regression and other more advanced deep convolutional and recurrent neural networks you will also learn about image processing handwritten recognition object recognition and much more furthermore you will get familiar with recurrent neural networks like lstm and gan as you explore processing sequence data like time series text and audio the book will definitely be your best companion on this great deep learning journey with keras introducing you to the basics you need to know in order to take next steps and learn more advanced deep neural networks 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 this book covers the basics behind convolutional neural networks by introducing you to this complex world of deep learning and artificial neural networks in a simple and easy to understand way it is perfect for any beginner out there looking forward to learning more about this machine learning field this book is all about how to use convolutional neural networks for various image object and other common classification problems in python here we also take a deeper look into various keras layer used for building cnns we take a look at different activation functions and much more which will eventually lead you to creating highly accurate models able of performing great task results on various image classification object classification and other problems therefore at the end of the book you will have a better insight into this world thus you will be more than prepared to deal with more complex and challenging tasks on your own 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 get this book bundle now and save money

Python Deep Learning

2019-01-16

learn advanced state of the art deep learning techniques and their applications using popular python libraries key features build a strong foundation in neural networks and deep learning with python libraries explore advanced deep learning techniques and their applications across computer vision and nlp learn how a computer can navigate in complex environments with reinforcement learning book description with the surge in artificial intelligence in applications catering to both business and consumer needs deep learning is more important than ever for meeting current and future market demands with this book you ll explore deep learning and learn how to put machine learning to use in your projects this second edition of python deep learning will get you up to speed with deep learning deep neural networks and how to train them with high performance algorithms and popular python frameworks you ll uncover different neural network architectures such as convolutional networks recurrent neural networks long short term memory lstm networks and capsule networks you ll also learn how to solve problems in the fields of computer vision natural language processing nlp and speech recognition you ll study generative model approaches such as variational autoencoders and generative adversarial networks gans to generate images as you delve into newly evolved areas of reinforcement learning you ll gain an understanding of state of the art algorithms that are the main components behind popular games go atari and dota by the end of the book you will be well versed with the theory of deep learning along with its real world applications what you will learn grasp the mathematical theory behind neural networks and deep learning processes investigate and resolve computer vision challenges using convolutional networks and capsule networks solve generative tasks using variational autoencoders and generative adversarial networks implement complex nlp tasks using recurrent networks lstm and gru and attention models explore reinforcement learning and understand how agents behave in a complex environment get up to date with applications of deep learning in autonomous vehicles who this book is for this book is for data science practitioners machine learning engineers and those interested in deep learning who have a basic foundation in machine learning and some python programming experience a background in mathematics and conceptual understanding of calculus and statistics will help you gain maximum benefit from this book

Python Deep Learning Cookbook

2017-10-27

solve different problems in modelling deep neural networks using python tensorflow and keras with this practical guide about this book practical recipes on training different neural network models and tuning them for optimal performance use python frameworks like tensorflow caffe keras theano for natural language processing computer vision and more a hands on guide covering the common as well as the not so common problems in deep learning using python who this book is for this book is intended for machine learning professionals who are looking to use deep learning algorithms to create real world applications using python thorough understanding of the machine learning concepts and python libraries such as numpy scipy and scikit learn is expected additionally basic knowledge in linear algebra and calculus is desired what you will learn implement different neural network models in python select the best python framework for deep learning such as pytorch tensorflow mxnet and keras apply tips and tricks related to neural networks internals to boost learning performances consolidate machine learning principles and apply them in the deep learning field reuse and adapt python code snippets to everyday problems evaluate the cost benefits and performance implication of

each discussed solution in detail deep learning is revolutionizing a wide range of industries for many applications deep learning has proven to outperform humans by making faster and more accurate predictions this book provides a top down and bottom up approach to demonstrate deep learning solutions to real world problems in different areas these applications include computer vision natural language processing time series and robotics the python deep learning cookbook presents technical solutions to the issues presented along with a detailed explanation of the solutions furthermore a discussion on corresponding pros and cons of implementing the proposed solution using one of the popular frameworks like tensorflow pytorch keras and cntk is provided the book includes recipes that are related to the basic concepts of neural networks all techniques as well as classical networks topologies the main purpose of this book is to provide python programmers a detailed list of recipes to apply deep learning to common and not so common scenarios style and approach unique blend of independent recipes arranged in the most logical manner

Network Intrusion Detection using Deep Learning

2018-09-25

this book presents recent advances in intrusion detection systems idss using state of the art deep learning methods it also provides a systematic overview of classical machine learning and the latest developments in deep learning in particular it discusses deep learning applications in idss in different classes generative discriminative and adversarial networks moreover it compares various deep learning based idss based on benchmarking datasets the book also proposes two novel feature learning models deep feature extraction and selection d fes and fully unsupervised ids further challenges and research directions are presented at the end of the book offering a comprehensive overview of deep learning based ids the book is a valuable reference resource for undergraduate and graduate students as well as researchers and practitioners interested in deep learning and intrusion detection further the comparison of various deep learning applications helps readers gain a basic understanding of machine learning and inspires applications in ids and other related areas in cybersecurity

Programming With Python

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 classfication 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

Hands-On Transfer Learning with Python

2018-08-31

deep learning simplified by taking supervised unsupervised and reinforcement learning to the next level using the python ecosystem key features build deep learning models with transfer learning principles in python implement transfer learning to solve real world research problems perform complex operations such as image captioning neural style transfer book description transfer learning is a machine learning ml technique where knowledge gained during training a set of problems can be used to solve other similar problems the purpose of this book is two fold firstly we focus on detailed coverage of deep learning dl and transfer learning comparing and contrasting the two with easy to follow concepts and examples the second area of focus is real world examples and research problems using tensorflow keras and the python ecosystem with hands on examples the book starts with the key essential concepts of ml and dl followed by depiction and coverage of important dl architectures such as convolutional neural networks cnns deep neural networks dnns recurrent neural networks rnns long short term memory lstm and capsule networks our focus then shifts to transfer learning concepts such as model freezing fine tuning pre trained models including vgg inception resnet and how these systems perform better than dl models with practical examples in the concluding chapters we will focus on a multitude of real world case studies and problems associated with areas such as computer vision audio analysis and natural language processing nlp by the end of this book you will be able to implement both dl and transfer learning principles in your own systems what you will learn set up your own dl environment with graphics processing unit gpu and cloud support delve into transfer learning principles with ml and dl models explore various dl architectures including cnn lstm and capsule networks learn about data and network representation and loss functions get to grips with models and strategies in transfer learning walk through potential challenges in building complex transfer learning models from scratch explore real world research problems related to computer vision and audio analysis understand how transfer learning can be leveraged in nlp who this book is for hands on transfer learning with python is for data scientists machine learning engineers analysts and developers with an interest in data and applying state of the art transfer learning methodologies to solve tough real world problems basic proficiency in machine learning and python is required

Time Series Forecasting using Deep Learning

2021-10-15

explore the infinite possibilities offered by artificial intelligence and neural networks key features covers numerous concepts techniques best practices and troubleshooting tips by community experts includes practical demonstration of robust deep learning prediction models with exciting use cases covers the use of the most powerful research toolkit such as python pytorch and neural network intelligence description this book is amid at teaching the readers how to apply the deep learning techniques to the time series forecasting challenges and how to build prediction models using pytorch the readers will learn the fundamentals of pytorch

in the early stages of the book next the time series forecasting is covered in greater depth after the programme has been developed you will try to use machine learning to identify the patterns that can help us forecast the future results it covers methodologies such as recurrent neural network encoder decoder model and temporal convolutional network all of which are state of the art neural network architectures furthermore for good measure we have also introduced the neural architecture search which automates searching for an ideal neural network design for a certain task finally by the end of the book readers would be able to solve complex real world prediction issues by applying the models and strategies learnt throughout the course of the book this book also offers another great way of mastering deep learning and its various techniques what you will learn work with the encoder decoder concept and temporal convolutional network mechanics learn the basics of neural architecture search with neural network intelligence combine standard statistical analysis methods with deep learning approaches automate the search for optimal predictive architecture design your custom neural network architecture for specific tasks apply predictive models to real world problems of forecasting stock quotes weather and natural processes who this book is for this book is written for engineers data scientists and stock traders who want to build time series forecasting programs using deep learning possessing some familiarity of python is sufficient while a basic understanding of machine learning is desirable but not needed table of contents 1 time series problems and challenges 2 deep learning with pytorch 3 time series as deep learning problem 4 recurrent neural networks 5 advanced forecasting models 6 pytorch model tuning with neural network intelligence 7 applying deep learning to real world forecasting problems 8 pytorch forecasting package 9 what is next

Deep Learning with R for Beginners

2019-05-20

explore the world of neural networks by building powerful deep learning models using the r ecosystem key features get to grips with the fundamentals of deep learning and neural networks use r 3.5 and its libraries and apis to build deep learning models for computer vision and text processing implement effective deep learning systems in r with the help of end to end projects book description deep learning finds practical applications in several domains while r is the preferred language for designing and deploying deep learning models this learning path introduces you to the basics of deep learning and even teaches you to build a neural network model from scratch as you make your way through the chapters you will explore deep learning libraries and understand how to create deep learning models for a variety of challenges right from anomaly detection to recommendation systems the book will then help you cover advanced topics such as generative adversarial networks gans transfer learning and large scale deep learning in the cloud in addition to model optimization overfitting and data augmentation through real world projects you will also get up to speed with training convolutional neural networks cnns recurrent neural networks rnns and long short term memory networks lstms in r by the end of this learning path you will be well versed with deep learning and have the skills you need to implement a number of deep learning concepts in your research work or projects this learning path includes content from the following packt products r deep learning essentials second edition by joshua f wiley and mark hodnettr deep learning projects by yuxi hayden liu and pablo maldonado what you will learn implement credit card fraud detection with autoencoder strain neural networks to perform handwritten digit recognition using mxnet reconstruct images using variational autoencoder explore the applications of autoencoder neural networks in clustering and dimensionality reduction create natural language processing nlp models using keras and tensorflow in r prevent models from overfitting the data to improve generalizability build shallow neural network prediction models who this book is for this learning path is for aspiring data scientists data analysts machine learning developers and deep learning enthusiasts who are well versed in machine learning concepts and are looking to explore the deep learning paradigm using r a fundamental understanding of r programming and familiarity with the basic concepts of deep learning are necessary to get the most out of this learning path

Elements of Artificial Neural Networks

1997

elements of artificial neural networks provides a clearly organized general introduction focusing on a broad range of algorithms for students and others who want to use neural networks rather than simply study them the authors who have been developing and team teaching the material in a one semester course over the past six years describe most of the basic neural network models with several detailed solved examples and discuss the rationale and advantages of the models as well as their limitations the approach is practical and open minded and requires very little mathematical or technical background written from a computer science and statistics point of view the text stresses links to contiguous fields and can easily serve as a first course for students in economics and management the opening chapter sets the stage presenting the basic concepts in a clear and objective way and tackling important yet rarely addressed questions related to the use of neural networks in practical situations subsequent chapters on supervised learning single layer and multilayer networks unsupervised learning and associative models are structured around classes of problems to which networks can be applied applications are discussed along with the algorithms a separate chapter takes up optimization methods the most frequently used algorithms such as backpropagation are introduced early on right after perceptrons so that these can form the basis for initiating course projects algorithms published as late as 1995 are also included all of the algorithms are presented using block structured pseudo code and exercises are provided throughout software implementing many commonly used neural network algorithms is available at the book s website transparency masters including abbreviated text and figures for the entire book are available for instructors using the text

Deep Learning with PyTorch

2020-08-04

every other day we hear about new ways to put deep learning to good use improved medical imaging accurate credit card fraud detection long range weather forecasting and more pytorch puts these superpowers in your hands providing a comfortable python experience that gets you started quickly and then grows with you as you and your deep learning skills become more sophisticated deep learning with pytorch will make that journey engaging and fun summary every other day we hear about new ways to put deep learning to good use improved medical imaging accurate credit card fraud detection long range weather forecasting and more pytorch puts these superpowers in your hands providing a comfortable python experience that gets you started quickly and then grows with you as you and your deep learning skills become more sophisticated deep learning with pytorch will make that journey engaging and fun foreword by soumith chintala cocreator of pytorch purchase of the print book includes a free ebook in pdf kindle and epub formats from manning publications about the technology although many deep learning tools use python the pytorch library is truly pythonic instantly familiar to anyone who knows pydata tools like numpy and scikit learn pytorch simplifies deep learning without sacrificing advanced features it s excellent for building quick models and it scales smoothly from laptop to enterprise because companies like apple facebook and jpmorgan chase rely on pytorch it s a great skill to have as you expand your career options it s easy to get started with pytorch it minimizes cognitive overhead without sacrificing the access to advanced features meaning you can focus on what matters the most building and training the latest and greatest deep learning models and contribute to making a dent in the world pytorch is also a snap to scale and extend and it partners well with other python tooling pytorch has been adopted by hundreds of deep learning practitioners and several first class players like fair openai fastai and purdue about the book deep learning with pytorch teaches you to create neural networks and deep learning systems with pytorch this practical book quickly gets you to work building a real world example from scratch a tumor image classifier along the way it covers best practices for the entire dl pipeline including the pytorch tensor api loading data in python monitoring training and visualizing

results after covering the basics the book will take you on a journey through larger projects the centerpiece of the book is a neural network designed for cancer detection you ll discover ways for training networks with limited inputs and start processing data to get some results you ll sift through the unreliable initial results and focus on how to diagnose and fix the problems in your neural network finally you ll look at ways to improve your results by training with augmented data make improvements to the model architecture and perform other fine tuning what s inside training deep neural networks implementing modules and loss functions utilizing pretrained models from pytorch hub exploring code samples in jupyter notebooks about the reader for python programmers with an interest in machine learning about the author eli stevens had roles from software engineer to cto and is currently working on machine learning in the self driving car industry luca antiga is cofounder of an ai engineering company and an ai tech startup as well as a former pytorch contributor thomas viehmann is a pytorch core developer and machine learning trainer and consultant consultant based in munich germany and a pytorch core developer table of contents part 1 core pytorch 1 introducing deep learning and the pytorch library 2 pretrained networks 3 it starts with a tensor 4 real world data representation using tensors 5 the mechanics of learning 6 using a neural network to fit the data 7 telling birds from airplanes learning from images 8 using convolutions to generalize part 2 learning from images in the real world early detection of lung cancer 9 using pytorch to fight cancer 10 combining data sources into a unified dataset 11 training a classification model to detect suspected tumors 12 improving training with metrics and augmentation 13 using segmentation to find suspected nodules 14 end to end nodule analysis and where to go next part 3 deployment 15 deploying to production

Hands-On Deep Learning with TensorFlow

2017-07-31

this book is your guide to exploring the possibilities in the field of deep learning making use of google s tensorflow you will learn about convolutional neural networks and logistic regression while training models for deep learning to gain key insights into your data about this book explore various possibilities with deep learning and gain amazing insights from data using google s brainchild tensorflow want to learn what more can be done with deep learning explore various neural networks with the help of this comprehensive guide rich in concepts advanced guide on deep learning that will give you background to innovate in your environment who this book is for if you are a data scientist who performs machine learning on a regular basis are familiar with deep neural networks and now want to gain expertise in working with convoluted neural networks then this book is for you some familiarity with c or python is assumed what you will learn set up your computing environment and install tensorflow build simple tensorflow graphs for everyday computations apply logistic regression for classification with tensorflow design and train a multilayer neural network with tensorflow intuitively understand convolutional neural networks for image recognition bootstrap a neural network from simple to more accurate models see how to use tensorflow with other types of networks program networks with scikit flow a high level interface to tensorflow in detail dan van boxel s deep learning with tensorflow is based on dan s best selling tensorflow video course with deep learning going mainstream making sense of data and getting accurate results using deep networks is possible dan van boxel will be your guide to exploring the possibilities with deep learning he will enable you to understand data like never before with the efficiency and simplicity of tensorflow you will be able to process your data and gain insights that will change how you look at data with dan s guidance you will dig deeper into the hidden layers of abstraction using raw data dan then shows you various complex algorithms for deep learning and various examples that use these deep neural networks you will also learn how to train your machine to craft new features to make sense of deeper layers of data in this book dan shares his knowledge across topics such as logistic regression convolutional neural networks recurrent neural networks training deep networks and high level interfaces with the help of novel practical examples you will become an ace at advanced multilayer networks image recognition and beyond style and approach this book is your go to guide to becoming a deep learning expert in your organization dan helps you evaluate common and not so common deep neural networks with the help of insightful examples that you can relate to

and show how they can be exploited in the real world with complex raw data

Advanced Deep Learning with Python

2019-12-12

gain expertise in advanced deep learning domains such as neural networks meta learning graph neural networks and memory augmented neural networks using the python ecosystem key features get to grips with building faster and more robust deep learning architectures investigate and train convolutional neural network cnn models with gpu accelerated libraries such as tensorflow and pytorch apply deep neural networks dnns to computer vision problems nlp and gans book description in order to build robust deep learning systems you ll need to understand everything from how neural networks work to training cnn models in this book you ll discover newly developed deep learning models methodologies used in the domain and their implementation based on areas of application you ll start by understanding the building blocks and the math behind neural networks and then move on to cnns and their advanced applications in computer vision you ll also learn to apply the most popular cnn architectures in object detection and image segmentation further on you ll focus on variational autoencoders and gans you ll then use neural networks to extract sophisticated vector representations of words before going on to cover various types of recurrent networks such as lstm and gru you ll even explore the attention mechanism to process sequential data without the help of recurrent neural networks rnns later you ll use graph neural networks for processing structured data along with covering meta learning which allows you to train neural networks with fewer training samples finally you ll understand how to apply deep learning to autonomous vehicles by the end of this book you ll have mastered key deep learning concepts and the different applications of deep learning models in the real world what you will learn cover advanced and state of the art neural network architectures understand the theory and math behind neural networks train dnns and apply them to modern deep learning problems use cnns for object detection and image segmentation implement generative adversarial networks gans and variational autoencoders to generate new images solve natural language processing nlp tasks such as machine translation using sequence to sequence models understand dl techniques such as meta learning and graph neural networks who this book is for this book is for data scientists deep learning engineers and researchers and ai developers who want to further their knowledge of deep learning and build innovative and unique deep learning projects anyone looking to get to grips with advanced use cases and methodologies adopted in the deep learning domain using real world examples will also find this book useful basic understanding of deep learning concepts and working knowledge of the python programming language is assumed

Advanced Neural Networks With Matlab

2017-05-29

matlab neural network toolbox provides algorithms pretrained models and apps to create train visualize and simulate both shallow and deep neural networks you can perform classification regression clustering dimensionality reduction time series forecasting and dynamic system modeling and control deep learning networks include convolutional neural networks convnets cnns and autoencoders for image classification regression and feature learning for small training sets you can quickly apply deep learning by performing transfer learning with pretrained deep networks to speed up training on large datasets you can use parallel computing toolbox to distribute computations and data across multicore processors and gpus on the desktop and you can scale up to clusters and clouds including amazon ec2 r p2 gpu instances with matlab r distributed computing server the key features developed in this book are de next deep learning with convolutional neural networks for classification and regression and autoencoders for feature learning transfer learning with pretrained convolutional neural network models training and inference with cpus or multi gpus on desktops clusters and clouds unsupervised learning algorithms including self organizing maps and competitive layers supervised learning

algorithms including multilayer radial basis learning vector quantization lvq time delay nonlinear autoregressive narx and recurrent neural network rnn preprocessing postprocessing and network visualization for improving training efficiency and assessing network performance

Applied Artificial Intelligence

2019-03-30

about this book step into the amazing world of artificial intelligence and machine learning using this compact and easy to understand book dive into neural networks and deep learning and create your own production ready ai models by using tensorflow and keras work through simple yet insightful examples that will get you up and running with artificial intelligence tensorflow and keras in no time who this book is for this book is for python developers who want to understand neural networks from ground up and 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 what you will learn the basic structure and functionality of a neuron the basic math behind the neural network learning process see how to build a simple character recognition model from ground up what classification regression and clustering is how to use tensorflow to build production ready models build a first model with the keras framework how to predict the survival chance for titanic passengers how to build a simple book recommender how to detect toxic language with an ai model in detail artificial intelligence became one of the hottest topics in the modern economy where everything is driven by software network and data there exists nearly no startup nor traditional business where artificial intelligence is not used extensively across many fields such as search engines image recognition robotics or finance this book gives a ground up step by step introduction about how a neural network is used to learn a given function and to make intelligent data driven decisions the book explains how to identify typical use cases such as classification regression and clustering in terms of practical and well known use cases this book comes with an introduction into the state of the art google tensorflow framework that allows developers to roll out their models in production on top of tensorflow the keras library is used to simplify the design and training of complex deep learning models this book comes with multiple examples that show how to apply artificial intelligence and machine learning models for use cases such as handwriting recognition decision making text analysis and toxic comment identification as well as the use of ai to recommend products to customers

Hands-On Neural Networks with Keras

2020-12-10

your one stop guide to learning and implementing artificial neural networks with keras effectively key features design and create neural network architectures on different domains using keras integrate neural network models in your applications using this highly practical guide get ready for the future of neural networks through transfer learning and predicting multi network models book 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 cns 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 cns 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 learn understand the fundamental nature and workflow of predictive data modeling explore how different types of visual and linguistic signals are processed by neural networks dive into the mathematical and statistical ideas behind how networks learn from data design and implement various neural networks such as cns lstms and gans use different architectures to tackle cognitive tasks and embed intelligence in systems learn how to generate synthetic data and use augmentation strategies to improve your models stay on top of the latest academic and commercial developments in the field of ai who 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

Introduction to Deep Learning and Neural Networks with PythonT

2018-01-23

introduction to deep learning and neural networks with pythonT a practical guide is an intensive step by step guide for neuroscientists to fully understand practice and build neural networks providing math and pythonT code examples to clarify neural network calculations by book s end readers will fully understand how neural networks work starting from the simplest model $y = x$ and building from scratch details and explanations are provided on how a generic gradient descent algorithm works based on mathematical and pythonT examples teaching you how to use the gradient descent algorithm to manually perform all calculations in both the forward and backward passes of training a neural network examines the practical side of deep learning and neural networks provides a problem based approach to building artificial neural networks using real data describes pythonT functions and features for neuroscientists uses a careful tutorial approach to describe implementation of neural networks in pythonT features math and code examples via companion website with helpful instructions for easy implementation

Deep Learning for Computer Vision

2019-03-28

learn how to model and train advanced neural networks to implement a variety of computer vision tasks key features train different kinds of deep learning model from scratch to solve specific problems in computer vision combine the power of python keras and tensorflow to build deep learning models for object detection image classification similarity learning image captioning and more includes tips on optimizing and improving the performance of your models under various constraints book description deep learning has shown its power in several application areas of artificial intelligence especially in computer vision computer vision is the science of understanding and manipulating images and finds enormous applications in the areas of robotics automation and so on this book will also show you with practical examples how to develop computer vision applications by leveraging the power of deep learning in this book you will learn different techniques related to object classification object detection image segmentation captioning image generation face analysis and more you will also explore their applications using popular python libraries such as tensorflow and keras this book will help you master state of the art deep learning algorithms and their implementation what you will learn set up an environment for deep learning with python tensorflow and keras define and train a model for image and video classification use features from a pre trained convolutional neural network model for image retrieval understand and implement object detection using the real world pedestrian detection scenario learn about various problems in image captioning and how to overcome them by training images and text together implement similarity matching and train a model for face recognition understand the concept of generative models and use them for image generation deploy your deep learning models and optimize them for high

performance who this book is for this book is targeted at data scientists and computer vision practitioners who wish to apply the concepts of deep learning to overcome any problem related to computer vision a basic knowledge of programming in python and some understanding of machine learning concepts is required to get the best out of this book

Deep Learning with Microsoft Cognitive Toolkit Quick Start Guide

2017-06-08

learn how to train popular deep learning architectures such as autoencoders convolutional and recurrent neural networks while discovering how you can use deep learning models in your software applications with microsoft cognitive toolkit key features understand the fundamentals of microsoft cognitive toolkit and set up the development environment train different types of neural networks using cognitive toolkit and deploy it to production evaluate the performance of your models and improve your deep learning skills book description cognitive toolkit is a very popular and recently open sourced deep learning toolkit by microsoft cognitive toolkit is used to train fast and effective deep learning models this book will be a quick introduction to using cognitive toolkit and will teach you how to train and validate different types of neural networks such as convolutional and recurrent neural networks this book will help you understand the basics of deep learning you will learn how to use microsoft cognitive toolkit to build deep learning models and discover what makes this framework unique so that you know when to use it this book will be a quick no nonsense introduction to the library and will teach you how to train different types of neural networks such as convolutional neural networks recurrent neural networks autoencoders and more using cognitive toolkit then we will look at two scenarios in which deep learning can be used to enhance human capabilities the book will also demonstrate how to evaluate your models performance to ensure it trains and runs smoothly and gives you the most accurate results finally you will get a short overview of how cognitive toolkit fits in to a devops environment what you will learn set up your deep learning environment for the cognitive toolkit on windows and linux pre process and feed your data into neural networks use neural networks to make efficient predictions and recommendations train and deploy efficient neural networks such as cnn and rnn detect problems in your neural network using tensorboard integrate cognitive toolkit with azure ml services for effective deep learning who this book is for data scientists machine learning developers ai developers who wish to train and deploy effective deep learning models using microsoft cntk will find this book to be useful readers need to have experience in python or similar object oriented language like c or java

Deep Learning: Practical Neural Networks with Java

2019-08-08

build and run intelligent applications by leveraging key java machine learning libraries about this book develop a sound strategy to solve predictive modelling problems using the most popular machine learning java libraries explore a broad variety of data processing machine learning and natural language processing through diagrams source code and real world applications 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 course is intended for data scientists and java developers who want to dive into the exciting world of deep learning it will get you up and running quickly and provide you with the skills you need to successfully create customize and deploy machine learning applications in real life what you will learn get a practical deep dive into machine learning and deep learning algorithms explore neural networks using some of the most popular deep learning frameworks dive into deep belief nets and stacked denoising autoencoders algorithms apply machine learning to fraud anomaly and outlier detection experiment with deep learning concepts algorithms and the toolbox for deep learning select and split data sets into training test and validation and explore validation strategies apply the code generated in practical examples including weather forecasting and pattern recognition in detail machine

learning applications are everywhere from self driving cars spam detection document search and trading strategies to speech recognition starting with an introduction to basic machine learning algorithms this course takes you further into this vital world of stunning predictive insights and remarkable machine intelligence this course helps you solve challenging problems in image processing speech recognition language modeling you will discover how to detect anomalies and fraud and ways to perform activity recognition image recognition and text you will also work with examples such as weather forecasting disease diagnosis customer profiling generalization extreme machine learning and more by the end of this course you will have all the knowledge you need to perform deep learning on your system with varying complexity levels to apply them to your daily work the course provides you with highly practical content explaining deep learning with java from the following packt books java deep learning essentials machine learning in java neural network programming with java second edition style and approach this course aims to create a smooth learning path that will teach you how to effectively use deep learning with java with other de facto components to get the most out of it through this comprehensive course you ll learn the basics of predictive modelling and progress to solve real world problems and links neural network theory to their application

Hands-On Deep Learning with Go

2008

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 guidebook description go is an open source programming language designed by google for handling large scale projects efficiently the go ecosystem comprises some really powerful deep learning tools such as dqn and cuda with this book you ll be able to use these tools to train and deploy scalable deep learning models from scratch this deep learning book begins by introducing you to a variety of tools and libraries available in go it then takes you through building neural networks including activation functions and the learning algorithms that make neural networks tick in addition to this you ll learn how to build advanced architectures such as autoencoders restricted boltzmann machines rbms convolutional neural networks cnns recurrent neural networks rnns and more you ll also understand how you can scale model deployments on the aws cloud infrastructure for training and inference by the end of this book you ll have mastered the art of building training and deploying deep learning models in go to solve real world problems what you will learn explore the go ecosystem of libraries and communities for deep learning get to grips with neural networks their history and how they work design and implement deep neural networks in go get a strong foundation of concepts such as backpropagation and momentum build variational autoencoders and restricted boltzmann machines using go build models with cuda and benchmark cpu and gpu models who this book is for this book is for data scientists machine learning engineers and ai developers who want to build state of the art deep learning models using go familiarity with basic machine learning concepts and go programming is required to get the best out of this book

Introduction to Neural Networks with Java

2020-09-06

introduction to neural networks in java second edition introduces the java programmer to the world of neural networks and artificial intelligence neural network architectures such as the feedforward hopfield and self organizing map networks are discussed training techniques such as backpropagation genetic algorithms and simulated annealing are also introduced practical examples are given for each neural network examples include the traveling salesman problem handwriting recognition financial prediction game strategy learning mathematical functions and special application to internet bots all java source code can be

downloaded online

PREDICTIVE ANALYTICS with NEURAL NETWORKS Using MATLAB

2018-02-23

predictive analytics encompasses a variety of statistical techniques from predictive modeling machine learning and data mining that analyze current and historical facts to make predictions about future or otherwise unknown events different work fields with neural networks and predictive analytics techniques are listed below the multilayer perceptron mlp a radial basis function rbf support vector machines svm fit regression models with neural networks time series neural networks hopfield and linear neural networks generalized regression and lvq neural networks adaptative linear filters and non linear problems

Deep Learning with PyTorch

build neural network models in text vision and advanced analytics using pytorch key features learn pytorch for implementing cutting edge deep learning algorithms train your neural networks for higher speed and flexibility and learn how to implement them in various scenarios cover various advanced neural network architecture such as resnet inception densenet and more with practical examples book description deep learning powers the most intelligent systems in the world such as google voice siri and alexa advancements in powerful hardware such as gpus software frameworks such as pytorch keras tensorflow and cntk along with the availability of big data have made it easier to implement solutions to problems in the areas of text vision and advanced analytics this book will get you up and running with one of the most cutting edge deep learning libraries pytorch pytorch is grabbing the attention of deep learning researchers and data science professionals due to its accessibility efficiency and being more native to python way of development you ll start off by installing pytorch then quickly move on to learn various fundamental blocks that power modern deep learning you will also learn how to use cnn rnn lstm and other networks to solve real world problems this book explains the concepts of various state of the art deep learning architectures such as resnet densenet inception and seq2seq without diving deep into the math behind them you will also learn about gpu computing during the course of the book you will see how to train a model with pytorch and dive into complex neural networks such as generative networks for producing text and images by the end of the book you ll be able to implement deep learning applications in pytorch with ease what you will learn use pytorch for gpu accelerated tensor computations build custom datasets and data loaders for images and test the models using torchvision and torchtext build an image classifier by implementing cnn architectures using pytorch build systems that do text classification and language modeling using rnn lstm and gru learn advanced cnn architectures such as resnet inception densenet and learn how to use them for transfer learning learn how to mix multiple models for a powerful ensemble model generate new images using gan s and generate artistic images using style transfer who this book is for this book is for machine learning engineers data analysts data scientists interested in deep learning and are looking to explore implementing advanced algorithms in pytorch some knowledge of machine learning is helpful but not a mandatory need working knowledge of python programming is expected

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