
Neural Networks Tricks Of The Trade 2nd Edition

Artificial Neural Networks
 Web-Based Neural Nets
 Advanced Applied Deep Learning
 Neural Networks for Modelling and Control of Dynamic Systems
 Neural Networks Theory
 Neural Networks with Keras Cookbook
 Deep Learning with Python
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 Principles Of Artificial Neural Networks: Basic Designs To Deep Learning (4th Edition)
 Elements of Artificial Neural Networks
 Neural Networks: Tricks of the Trade
 Fundamentals of Artificial Neural Networks
 Complex-Valued Neural Networks with Multi-Valued Neurons
 Hands-On Neural Network Programming with C#
 Artificial Neural Networks
 Understanding 99% of Artificial Neural Networks
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 Computer Programming - Python
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 Artificial Intelligence with Python
 Introduction to Artificial Neural Networks
 Python Deep Learning Cookbook
 Neural Network Methods for Natural Language Processing
 Applying Neural Networks
 Programming Machine Learning
 Neural Networks for Pattern Recognition

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MILLS OCONNOR

Artificial Neural Networks

Independently Published

Work with advanced topics in deep learning, such as optimization algorithms, hyper-parameter tuning, dropout, and error analysis as well as strategies to address typical problems encountered when training deep neural networks. You'll begin by studying the activation functions mostly with a single neuron (ReLU, sigmoid, and Swish), seeing how to perform linear and logistic regression using TensorFlow, and choosing the right cost function. The next section talks about more complicated neural network architectures with several layers and neurons and explores the problem of

random initialization of weights. An entire chapter is dedicated to a complete overview of neural network error analysis, giving examples of solving problems originating from variance, bias, overfitting, and datasets coming from different distributions. Applied Deep Learning also discusses how to implement logistic regression completely from scratch without using any Python library except NumPy, to let you appreciate how libraries such as TensorFlow allow quick and efficient experiments. Case studies for each method are included to put into practice all theoretical information. You'll discover tips and tricks for writing optimized Python code (for example vectorizing loops with NumPy). What You Will Learn Implement advanced techniques in the right way in Python and TensorFlow Debug and optimize advanced

methods (such as dropout and regularization) Carry out error analysis (to realize if one has a bias problem, a variance problem, a data offset problem, and so on) Set up a machine learning project focused on deep learning on a complex dataset Who This Book Is For Readers with a medium understanding of machine learning, linear algebra, calculus, and basic Python programming. [Web-Based Neural Nets](#) Springer Nature ☆★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!

Advanced Applied Deep Learning Apress

If you have always been fascinated by programming for Artificial Intelligence, but it always seemed to you like something too hard to learn, you are in the right place, looking at the right book. You surely are well aware of how important Artificial Intelligence is these days. Just think about your everyday life. Every time you buy a product on Amazon, follow a new profile on Instagram, listen to a song on Spotify, or reserve a room on Booking, these platforms are learning something out of your behavior. Also, it is commonly known that Machine Learning, Neural Networks, and the mastering of their most important language, Python, offer nowadays a lot of chances in work and business. Either if you want to start up your own enterprise, apply your knowledge to your current business, or find a job at the greatest and most innovative companies, Computer

Programming: Python will prepare the ground for your future success. And that's the reason why we put together three of the most successful Russel R. Russo books as *Learn Python Programming*, *Neural Networks for Beginners* and *Machine Learning with Python*. With *Computer Programming: Python you will: Discover why Python is the best language for Machine Learning* Find the smartest way to approach Machine Learning and interact with Python and Neural Networks Get tips and tricks for a smooth and painless journey into artificial intelligence and prevent you from getting lost in coding Debunk the most common myths about Machine Learning Code your first application Understand the elements of Python you will actually need Easily find your path among Python data, statements, classes and objects See how algorithms and Machine Learning will help you making predictions Learn the smartest way to approach Neural Network Programming Discover why algorithms are your friends Learn about The "three Vs" of Big Data (plus two new Vs) Spot the three most common problems with Neural Networks and how to overcome them

Neural Networks for Modelling and Control of Dynamic Systems

SPIE Press Dive deeper into neural networks and get your models trained, optimized with this quick reference guide Key Features A quick reference to all important deep learning concepts and their implementations Essential tips, tricks, and hacks to train a variety of deep learning models such as CNNs, RNNs, LSTMs, and more Supplemented with essential mathematics and theory, every chapter provides best practices and safe choices for training and fine-tuning your models in Keras and Tensorflow. Book Description Deep learning has become an essential necessity to enter the world of artificial intelligence. With this book deep learning techniques will become more accessible, practical, and relevant to practicing data scientists. It moves deep learning from academia to the real world through practical examples. You will learn how Tensor Board is used to monitor the training of deep neural networks and solve binary classification problems using deep learning. Readers will then learn to optimize hyperparameters in their deep learning models. The book then takes the readers through the practical implementation of training CNN's, RNN's, and LSTM's with word embeddings and seq2seq models from scratch. Later the book explores advanced topics such as Deep Q Network to solve an autonomous agent problem and how to use two

adversarial networks to generate artificial images that appear real. For implementation purposes, we look at popular Python-based deep learning frameworks such as Keras and Tensorflow, Each chapter provides best practices and safe choices to help readers make the right decision while training deep neural networks. By the end of this book, you will be able to solve real-world problems quickly with deep neural networks. What you will learn Solve regression and classification challenges with TensorFlow and Keras Learn to use Tensor Board for monitoring neural networks and its training Optimize hyperparameters and safe choices/best practices Build CNN's, RNN's, and LSTM's and using word embedding from scratch Build and train seq2seq models for machine translation and chat applications. Understanding Deep Q networks and how to use one to solve an autonomous agent problem. Explore Deep Q Network and address autonomous agent challenges. Who this book is for If you are a Data Scientist or a Machine Learning expert, then this book is a very useful read in training your advanced machine learning and deep learning models. You can also refer this book if you are stuck in-between the neural network modeling and need immediate assistance in getting accomplishing the task smoothly. Some prior knowledge of Python and tight hold on the basics of machine learning is required.

Neural Networks Theory

Springer This book should serves as a self-study course for engineers and computer scientist in the industry. The features include major neural network approaches and architectures with theories and detailed case studies for each of the approaches accompanied by complete computer codes and the corresponding computed results. There is also a chapter on LAMSTAR neural network.

Neural Networks with Keras Cookbook

Packt Publishing Ltd Neural networks are a family of powerful machine learning models. This book focuses on the application of neural network models to natural language data. The first half of the book (Parts I and II) covers the basics of supervised machine learning and feed-forward neural networks, the basics of working with machine learning over language data, and the use of vector-based rather than symbolic representations for words. It also covers the computation-graph abstraction, which allows to easily define and train arbitrary neural networks, and is the basis behind the design of contemporary neural

network software libraries. The second part of the book (Parts III and IV) introduces more specialized neural network architectures, including 1D convolutional neural networks, recurrent neural networks, conditioned-generation models, and attention-based models. These architectures and techniques are the driving force behind state-of-the-art algorithms for machine translation, syntactic parsing, and many other applications. Finally, we also discuss tree-shaped networks, structured prediction, and the prospects of multi-task learning.

Deep Learning with Python Springer Science & Business Media

Create and unleash the power of neural networks by implementing C# and .Net code

Key Features Get a strong foundation of neural networks with access to various machine learning and deep learning libraries

Real-world case studies illustrating various neural network techniques and architectures used by practitioners

Cutting-edge coverage of Deep Networks, optimization algorithms, convolutional networks, autoencoders and many more

Book Description Neural networks have made a surprise comeback in the last few years and have brought tremendous innovation in the world of artificial intelligence. The goal of this book is to provide C# programmers with practical guidance in solving complex computational challenges using neural networks and C# libraries such as CNTK, and TensorFlowSharp. This book will take you on a step-by-step practical journey, covering everything from the mathematical and theoretical aspects of neural networks, to building your own deep neural networks into your applications with the C# and .NET frameworks. This book begins by giving you a quick refresher of neural networks. You will learn how to build a neural network from scratch using packages such as Encog, Aforge, and Accord. You will learn about various concepts and techniques, such as deep networks, perceptrons, optimization algorithms, convolutional networks, and autoencoders. You will learn ways to add intelligent features to your .NET apps, such as facial and motion detection, object detection and labeling, language understanding, knowledge, and intelligent search. Throughout this book, you will be working on interesting demonstrations that will make it easier to implement complex neural networks in your enterprise applications. What you will learn

Understand perceptrons and how to implement them in C#

Learn how to train and visualize a neural network using

cognitive services

Perform image recognition for detecting and labeling objects using C# and TensorFlowSharp

Detect specific image characteristics such as a face using Accord.Net

Demonstrate particle swarm optimization using a simple XOR problem and EncogTrain

convolutional neural networks using ConvNetSharp

Find optimal parameters for your neural network functions using numeric and heuristic optimization techniques.

Who this book is for This book is for Machine Learning Engineers, Data Scientists, Deep Learning Aspirants and Data Analysts who are now looking to move into advanced machine learning and deep learning with C#. Prior knowledge of machine learning and working experience with C# programming is required to take most out of this book

TensorFlow for Deep Learning Springer Science & Business Media

It is our belief that researchers and practitioners acquire, through experience and word-of-mouth, techniques and heuristics that help them successfully apply neural networks to difficult real world problems. Often these "tricks" are theoretically well motivated. Sometimes they are the result of trial and error. However, their most common link is that they are usually hidden in people's heads or in the back pages of space-constrained conference papers. As a result newcomers to the field waste much time wondering why their networks train so slowly and perform so poorly. This book is an outgrowth of a 1996 NIPS workshop called Tricks of the Trade whose goal was to begin the process of gathering and documenting these tricks. The interest that the workshop generated motivated us to expand our collection and compile it into this book. Although we have no doubt that there are many tricks we have missed, we hope that what we have included will prove to be useful, particularly to those who are relatively new to the field. Each chapter contains one or more tricks presented by a given author (or authors). We have attempted to group related chapters into sections, though we recognize that the different sections are far from disjoint. Some of the chapters (e.g., 1, 13, 17) contain entire systems of tricks that are far more general than the category they have been placed in.

Neural Networks Packt Publishing Ltd

Here are the comprehensive details on cutting edge technologies employing neural networks for speech recognition and speech processing in modern communications. Going far beyond the simple speech recognition technologies on the market today, this new book, written

by and for speech and signal processing engineers in industry, R&D, and academia, takes you to the forefront of the hottest emergent neural net-based speech processing techniques.

Advances in Intelligent Signal Processing and Data Mining MIT Press

Though mathematical ideas underpin the study of neural networks, the author presents the fundamentals without the full mathematical apparatus. All aspects of the field are tackled, including artificial neurons as models of their real counterparts; the geometry of network action in pattern space; gradient descent methods, including back-propagation; associative memory and Hopfield nets; and self-organization and feature maps. The traditionally difficult topic of adaptive resonance theory is clarified within a hierarchical description of its operation. The book also includes several real-world examples to provide a concrete focus. This should enhance its appeal to those involved in the design, construction and management of networks in commercial environments and who wish to improve their understanding of network simulator packages. As a comprehensive and highly accessible introduction to one of the most important topics in cognitive and computer science, this volume should interest a wide range of readers, both students and professionals, in cognitive science, psychology, computer science and electrical engineering.

Deep Machine Learning CRC Press

This book is designed to enable the reader to design and run a neural network-based project. It presents everything the reader will need to know to ensure the success of such a project. The book contains a free disk with C and C++ programs, which implement many of the techniques discussed in the book.

Principles of Artificial Neural Networks iUniverse

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 s, 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

Applied Deep Learning Springer

This fundamental book on Artificial Neural Networks has its emphasis on clear concepts, ease of understanding and simple examples. Written for undergraduate students, the book presents a large variety of standard neural networks with architecture, algorithms and applications.

An Introduction to Neural Networks Machine Learning Mastery

The new frontier: Internet. This is one of the limits to the community of Neural Networks today. Most of the work related to Neural Networks pays little attention to the use of Internet technology. As a matter of fact, the author thinks that some element was needed as a kind of vehicle to bridge these two worlds. This is the reason why Web-Based Neural Nets came

to light. There is a general preconception that Neural Networks, as a field of study, must be difficult to master. Any attempt to simplify the learning process in this field is generally met with sharp criticism. This may reflect a feeling that ordinary people should not understand some subjects. To counteract these preconceptions and facilitate understanding, Web-Based Neural Nets is presented in a simple and straightforward manner. It is designed for students, first-level programmers, and others who are interested in Neural Networks and how they can be used in conjunction with the Internet.

Neural Network Architectures Morgan Kaufmann

Complex-Valued Neural Networks have higher functionality, learn faster and generalize better than their real-valued counterparts. This book is devoted to the Multi-Valued Neuron (MVN) and MVN-based neural networks. It contains a comprehensive observation of MVN theory, its learning, and applications. MVN is a complex-valued neuron whose inputs and output are located on the unit circle. Its activation function is a function only of argument (phase) of the weighted sum. MVN derivative-free learning is based on the error-correction rule. A single MVN can learn those input/output mappings that are non-linearly separable in the real domain. Such classical non-linearly separable problems as XOR and Parity n are the simplest that can be learned by a single MVN. Another important advantage of MVN is a proper treatment of the phase information. These properties of MVN become even more remarkable when this neuron is used as a basic one in neural networks. The Multilayer Neural Network based on Multi-Valued Neurons (MLMVN) is an MVN-based feedforward neural network. Its backpropagation learning algorithm is derivative-free and based on the error-correction rule. It does not suffer from the local minima phenomenon. MLMVN outperforms many other machine learning techniques in terms of learning speed, network complexity and generalization capability when solving both benchmark and real-world classification and prediction problems. Another interesting application of MVN is its use as a basic neuron in multi-state associative memories. The book is addressed to those readers who develop theoretical fundamentals of neural networks and use neural networks for solving various real-world problems. It should also be very suitable for Ph.D. and graduate students pursuing their degrees in computational intelligence.

Handbook of Neural Networks for Speech

Processing Packt Publishing Ltd

An easy to read guide to understand Artificial Neural Networks and other Artificial Intelligence subjects. We have made it EASY, CONCISE and PRACTICAL for you.

Neural Networks: Tricks of the Trade

Artech House Publishers

5 real-world projects to help you master deep learning concepts Key Features Master the different deep learning paradigms and build real-world projects related to text generation, sentiment analysis, fraud detection, and more Get to grips with R's impressive range of Deep Learning libraries and frameworks such as deepnet, MXNetR, Tensorflow, H2O, Keras, and text2vec Practical projects that show you how to implement different neural networks with helpful tips, tricks, and best practices Book Description R is a popular programming language used by statisticians and mathematicians for statistical analysis, and is popularly used for deep learning. Deep Learning, as we all know, is one of the trending topics today, and is finding practical applications in a lot of domains. This book demonstrates end-to-end implementations of five real-world projects on popular topics in deep learning such as handwritten digit recognition, traffic light detection, fraud detection, text generation, and sentiment analysis. You'll learn how to train effective neural networks in R—including convolutional neural networks, recurrent neural networks, and LSTMs—and apply them in practical scenarios. The book also highlights how neural networks can be trained using GPU capabilities. You will use popular R libraries and packages—such as MXNetR, H2O, deepnet, and more—to implement the projects. By the end of this book, you will have a better understanding of deep learning concepts and techniques and how to use them in a practical setting. What you will learn Instrument Deep Learning models with packages such as deepnet, MXNetR, Tensorflow, H2O, Keras, and text2vec Apply neural networks to perform handwritten digit recognition using MXNet Get the knack of CNN models, Neural Network API, Keras, and TensorFlow for traffic sign classification - Implement credit card fraud detection with Autoencoders Master reconstructing images using variational autoencoders Wade through sentiment analysis from movie reviews Run from past to future and vice versa with bidirectional Long Short-Term Memory (LSTM) networks Understand the applications of Autoencoder Neural Networks in clustering and dimensionality reduction Who this book is for Machine learning professionals

and data scientists looking to master deep learning by implementing practical projects in R will find this book a useful resource. A knowledge of R programming and the basic concepts of deep learning is required to get the best out of this book.

Neural Networks in Business: Techniques and Applications Apress

In a simple and accessible way it extends embedding field theory into areas of machine intelligence that have not been clearly dealt with before. Neural Networks for Pattern Recognition takes the pioneering work in artificial neural networks by Stephen Grossberg and his colleagues to a new level. In a simple and accessible way it extends embedding field theory into areas of machine intelligence that have not been clearly dealt with before. Following a tutorial of existing neural networks for pattern classification, Nigrin expands on these networks to present fundamentally new architectures that perform realtime pattern classification of embedded and synonymous patterns and that will aid in tasks such as vision, speech recognition, sensor fusion, and constraint satisfaction. Nigrin presents the new architectures in two stages. First he presents a network called Sonnet 1 that already achieves important properties such as the ability to learn and segment continuously varied input patterns in real time, to process patterns in a context sensitive fashion, and to learn new patterns without degrading existing categories. He then removes simplifications inherent in Sonnet 1 and introduces radically new architectures. These architectures have the power to classify patterns that may have similar meanings but that have different external appearances (synonyms). They also have been designed to represent patterns in a distributed fashion, both in short-term and long-term memory.

Principles Of Artificial Neural Networks:

Basic Designs To Deep Learning (4th Edition) World Scientific

Discover best practices for choosing, building, training, and improving deep learning models using Keras-R, and TensorFlow-R libraries Key Features Implement deep learning algorithms to build AI models with the help of tips and tricks Understand how deep learning models operate using expert techniques Apply reinforcement learning, computer vision, GANs, and NLP using a range of datasets Book Description Deep learning is a branch of machine learning based on a set of algorithms that attempt to model high-level abstractions in data. Advanced Deep Learning with R will help you understand popular deep learning architectures and their variants in R, along with providing real-life examples for them. This deep learning book starts by covering the essential deep learning techniques and concepts for prediction and classification. You will learn about neural networks, deep learning architectures, and the fundamentals for implementing deep learning with R. The book will also take you through using important deep learning libraries such as Keras-R and TensorFlow-R to implement deep learning algorithms within applications. You will get up to speed with artificial neural networks, recurrent neural networks, convolutional neural networks, long short-term memory networks, and more using advanced examples. Later, you'll discover how to apply generative adversarial networks (GANs) to generate new images; autoencoder neural networks for image dimension reduction, image de-noising and image correction and transfer learning to prepare, define, train, and model a deep neural network. By the end of this book, you will be ready to implement your knowledge and newly acquired skills for applying deep learning algorithms in R through real-world examples. What you

will learn Learn how to create binary and multi-class deep neural network models Implement GANs for generating new images Create autoencoder neural networks for image dimension reduction, image de-noising and image correction Implement deep neural networks for performing efficient text classification Learn to define a recurrent convolutional network model for classification in Keras Explore best practices and tips for performance optimization of various deep learning models Who this book is for This book is for data scientists, machine learning practitioners, deep learning researchers and AI enthusiasts who want to develop their skills and knowledge to implement deep learning techniques and algorithms using the power of R. A solid understanding of machine learning and working knowledge of the R programming language are required.

Elements of Artificial Neural Networks Packt Publishing Ltd

The field of Artificial Neural Networks is the fastest growing field in Information Technology and specifically, in Artificial Intelligence and Machine Learning. This must-have compendium presents the theory and case studies of artificial neural networks. The volume, with 4 new chapters, updates the earlier edition by highlighting recent developments in Deep-Learning Neural Networks, which are the recent leading approaches to neural networks. Uniquely, the book also includes case studies of applications of neural networks — demonstrating how such case studies are designed, executed and how their results are obtained. The title is written for a one-semester graduate or senior-level undergraduate course on artificial neural networks. It is also intended to be a self-study and a reference text for scientists, engineers and for researchers in medicine, finance and data mining.

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