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Neural Networks and Deep Learning **Deep Learning**
Neural Networks and Deep Learning
Neural Networks and Deep Learning
The Principles of Deep Learning Theory
Neural Networks with R **Deep Learning Neural Networks**
Introduction to Deep Learning and Neural Networks with Python
Neural Networks **Strengthening Deep Neural Networks**
Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications
Artificial Intelligence for

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MATLAB Deep Learning
Deep Neural Networks in a Mathematical Framework
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Efficient Processing of Deep Neural Networks **Learn Keras for Deep Neural Networks**
Deep Learning: Practical Neural Networks with Java

Deep Learning Essentials
Hands-On Deep Learning for Games *Interpretable Machine Learning* **Neural Network Programming with TensorFlow** **Deep Learning for Natural Language Processing** **Deep Learning Illustrated** Deep Neural Networks for Multimodal Imaging and Biomedical Applications Learning Deep Learning **Applied Deep Learning TensorFlow for Deep Learning** **Neural Networks for Natural Language Processing** **Deep Learning for Computer Vision** **Advanced Applied Deep Learning** **Deep Learning and Artificial Intelligence: A Beginners' Guide to Neural Networks and Deep Learning** *Neural Network for Beginners* Deep Learning and Convolutional Neural Networks for Medical Image Computing

Deep Learning Mar 15 2022
Although interest in machine learning has reached a high point, lofty expectations often scuttle projects before they get

very far. How can machine learning—especially deep neural networks—make a real difference in your organization? This hands-on guide not only provides the most practical information available on the subject, but also helps you get started building efficient deep learning networks. Authors Adam Gibson and Josh Patterson provide theory on deep learning before introducing their open-source Deeplearning4j (DL4J) library for developing production-class workflows. Through real-world examples, you'll learn methods and strategies for training deep network architectures and running deep learning workflows on Spark and Hadoop with DL4J. Dive into machine learning concepts in general, as well as deep learning in particular. Understand how deep networks evolved from neural network fundamentals. Explore the major deep network architectures, including Convolutional and Recurrent. Learn how to map specific

deep networks to the right problem Walk through the fundamentals of tuning general neural networks and specific deep network architectures Use vectorization techniques for different data types with DataVec, DL4J's workflow tool Learn how to use DL4J natively on Spark and Hadoop

Deep Learning Illustrated

Mar 03 2021 "The authors' clear visual style provides a comprehensive look at what's currently possible with artificial neural networks as well as a glimpse of the magic that's to come." - Tim Urban, author of Wait But Why Fully Practical, Insightful Guide to Modern Deep Learning Deep learning is transforming software, facilitating powerful new artificial intelligence capabilities, and driving unprecedented algorithm performance. Deep Learning Illustrated is uniquely intuitive and offers a complete introduction to the discipline's techniques. Packed with full-color figures and easy-to-follow code, it sweeps away the complexity of building deep

learning models, making the subject approachable and fun to learn. World-class instructor and practitioner Jon Krohn-with visionary content from Grant Beyleveld and beautiful illustrations by Aglaé Bassens-presents straightforward analogies to explain what deep learning is, why it has become so popular, and how it relates to other machine learning approaches. Krohn has created a practical reference and tutorial for developers, data scientists, researchers, analysts, and students who want to start applying it. He illuminates theory with hands-on Python code in accompanying Jupyter notebooks. To help you progress quickly, he focuses on the versatile deep learning library Keras to nimbly construct efficient TensorFlow models; PyTorch, the leading alternative library, is also covered. You'll gain a pragmatic understanding of all major deep learning approaches and their uses in applications ranging from machine vision and natural

language processing to image generation and game-playing algorithms. Discover what makes deep learning systems unique, and the implications for practitioners Explore new tools that make deep learning models easier to build, use, and improve Master essential theory: artificial neurons, training, optimization, convolutional nets, recurrent nets, generative adversarial networks (GANs), deep reinforcement learning, and more Walk through building interactive deep learning applications, and move forward with your own artificial intelligence projects Register your book for convenient access to downloads, updates, and/or corrections as they become available. See inside book for details.

Neural Networks for Natural Language Processing Sep 28 2020 Information in today's advancing world is rapidly expanding and becoming widely available. This eruption of data has made handling it a daunting and time-consuming task. Natural language

processing (NLP) is a method that applies linguistics and algorithms to large amounts of this data to make it more valuable. NLP improves the interaction between humans and computers, yet there remains a lack of research that focuses on the practical implementations of this trending approach. Neural Networks for Natural Language Processing is a collection of innovative research on the methods and applications of linguistic information processing and its computational properties. This publication will support readers with performing sentence classification and language generation using neural networks, apply deep learning models to solve machine translation and conversation problems, and apply deep structured semantic models on information retrieval and natural language applications. While highlighting topics including deep learning, query entity recognition, and information retrieval, this book is ideally

designed for research and development professionals, IT specialists, industrialists, technology developers, data analysts, data scientists, academics, researchers, and students seeking current research on the fundamental concepts and techniques of natural language processing. Deep Neural Networks for Multimodal Imaging and Biomedical Applications Jan 30 2021 The field of healthcare is seeing a rapid expansion of technological advancement within current medical practices. The implementation of technologies including neural networks, multi-modal imaging, genetic algorithms, and soft computing are assisting in predicting and identifying diseases, diagnosing cancer, and the examination of cells. Implementing these biomedical technologies remains a challenge for hospitals worldwide, creating a need for research on the specific applications of these computational techniques. Deep Neural Networks for

Multimodal Imaging and Biomedical Applications provides research exploring the theoretical and practical aspects of emerging data computing methods and imaging techniques within healthcare and biomedicine. The publication provides a complete set of information in a single module starting from developing deep neural networks to predicting disease by employing multi-modal imaging. Featuring coverage on a broad range of topics such as prediction models, edge computing, and quantitative measurements, this book is ideally designed for researchers, academicians, physicians, IT consultants, medical software developers, practitioners, policymakers, scholars, and students seeking current research on biomedical advancements and developing computational methods in healthcare.

Applied Deep Learning Nov 30 2020 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.

Interpretable Machine

Learning Jun 05 2021 This book is about making machine learning models and their decisions interpretable. After exploring the concepts of interpretability, you will learn about simple, interpretable

models such as decision trees, decision rules and linear regression. Later chapters focus on general model-agnostic methods for interpreting black box models like feature importance and accumulated local effects and explaining individual predictions with Shapley values and LIME. All interpretation methods are explained in depth and discussed critically. How do they work under the hood? What are their strengths and weaknesses? How can their outputs be interpreted? This book will enable you to select and correctly apply the interpretation method that is most suitable for your machine learning project.

Neural Network Programming with TensorFlow

May 05 2021
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 DetailIf you're aware of the buzz surrounding the terms such as "machine learning," "artificial intelligence," or "deep learning," you might know what neural networks are. Ever wondered how they help in solving complex computational problem efficiently, or how to train efficient neural networks? This book will teach you just that.You will start by getting a quick overview of the popular TensorFlow library and how it is used to train different neural networks. You will get a thorough understanding of the fundamentals and basic math for neural networks and why TensorFlow is a popular choice Then, you will proceed to implement a simple feed

forward neural network. Next you will master optimization techniques and algorithms for neural networks using TensorFlow. Further, you will learn to implement some more complex types of neural networks such as convolutional neural networks, recurrent neural networks, and Deep Belief Networks. In the course of the book, you will be working on real-world datasets to get a hands-on understanding of neural network programming. You will also get to train generative models and will learn the applications of autoencoders.By the end of this book, you will have a fair understanding of how you can leverage the power of TensorFlow to train neural networks of varying complexities, without any hassle. While you are learning about various neural network implementations you will learn the underlying mathematics and linear algebra and how they map to the appropriate TensorFlow constructs.Style and ApproachThis 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 and Deep Learning May 29 2023 What's Inside? This includes 3 manuscripts: Book 1: Neural Networks & Deep Learning: Deep Learning explained to your granny - A visual introduction for beginners who want to make their own Deep Learning Neural Network... What you will gain from this book: * A deep understanding of how Deep Learning works * A basics comprehension on how to build a Deep Neural Network from scratch Who this book is for: * Beginners who want to approach the topic, but are too afraid of complex math to start! * Two main Types of

Machine Learning Algorithms * A practical example of Unsupervised Learning * What are Neural Networks? * McCulloch-Pitts's Neuron * Types of activation function * Types of network architectures * Learning processes * Advantages and disadvantages * Let us give a memory to our Neural Network * The example of book writing Software * Deep learning: the ability of learning to learn * How does Deep Learning work? * Main architectures and algorithms * Main types of DNN * Available Frameworks and libraries * Convolutional Neural Networks * Tunnel Vision * Convolution * The right Architecture for a Neural Network * Test your Neural Network * A general overview of Deep Learning * What are the limits of Deep Learning? * Deep Learning: the basics * Layers, Learning paradigms, Training, Validation * Main architectures and algorithms * Models for Deep Learning * Probabilistic graphic models * Restricted Boltzmann Machines * Deep Belief Networks Book2: Deep

Learning: Deep Learning explained to your granny - A guide for Beginners... What's Inside? * A general overview of Deep Learning * What are the limits of Deep Learning? * Deep Learning: the basics * Layers, Learning paradigms, Training, Validation * Main architectures and algorithms * Convolutional Neural Networks * Models for Deep Learning * Probabilistic graphical models * Restricted Boltzmann Machines * Deep Belief Networks * Available Frameworks and libraries * TensorFlow Book 3: Big Data: The revolution that is transforming our work, market and world... "Within 2 days we produce the same amount of data generated by at the beginning of the civilization until 2003," said Eric Schmidt in 2010. According to IBM, by 2020 the world will have generated a mass of data on the order of 40 zettabyte (10²¹Byte). Just think, for example, of digital content such as photos, videos, blogs, posts, and everything that revolves around social

networks; only Facebook marks 30 billion pieces of content each month shared by its users. The explosion of social networks, combined with the emergence of smartphones, justifies the fact that one of the recurring terms of recent years in the field of innovation, marketing and IT is "Big Data." The term Big Data indicates data produced in massive quantities, with remarkable rapidity and in the most diverse formats, which require technologies and resources that go far beyond conventional data management and storage systems. In order to obtain from the use of this data the maximum results in the shortest possible time or even in real time, specific tools with high computing capabilities are necessary. But what does the Big Data phenomenon mean? Is the proliferation of data simply the sign of an increasingly invasive world? Or is there something more to it? Pat Nakamoto will guide you through the discovery of the world of Big data, which, according to experts, in the

near future could become the new gold or oil, in what is a real Data Driven economy.

Neural Networks Dec 24 2022

Would you achieve more if you could envision your success? A neural network is a computing system made up of a number of simple, highly interconnected processing elements, which process information by their dynamic state response to external inputs. All of this sounds fancy, but what does it mean for computer intelligence, or for the future? In this book, you will find answers to many practical and theoretical questions related to neural networks, from insights about nodes and hidden layers to error spaces, network analyses, and computing influences. Topics will be discussed, such as: What the definition of neural networks encompasses and what all the elements pertaining to them mean. The main advantages of neural networks and how to leverage and apply them. Limitations to neural networks. How neural networks differ from conventional computing

systems. Neural Network applications for medical diagnostics, smart computers, artificial intelligence, and forex or stock trading.

Troubleshooting tips for when neural networks stop functioning. If you are even in the least interested in computer technology, artificial intelligence, or what the technological future will bring, you need to read this book and get a better understanding of neural networks and their many applications. This book will bring you to the core of how they function and what you can do with them. Add this book to your cart.

Deep Neural Networks in a Mathematical Framework

Jun 17 2022 This SpringerBrief describes how to build a rigorous end-to-end mathematical framework for deep neural networks. The authors provide tools to represent and describe neural networks, casting previous results in the field in a more natural light. In particular, the authors derive gradient descent algorithms in a unified

way for several neural network structures, including multilayer perceptrons, convolutional neural networks, deep autoencoders and recurrent neural networks. Furthermore, the authors developed framework is both more concise and mathematically intuitive than previous representations of neural networks. This SpringerBrief is one step towards unlocking the black box of Deep Learning. The authors believe that this framework will help catalyze further discoveries regarding the mathematical properties of neural networks. This SpringerBrief is accessible not only to researchers, professionals and students working and studying in the field of deep learning, but also to those outside of the neural network community.

Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications Oct 22 2022 Due to the growing use of web applications and communication devices, the use of data has increased

throughout various industries. It is necessary to develop new techniques for managing data in order to ensure adequate usage. Deep learning, a subset of artificial intelligence and machine learning, has been recognized in various real-world applications such as computer vision, image processing, and pattern recognition. The deep learning approach has opened new opportunities that can make such real-life applications and tasks easier and more efficient. **Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications** is a vital reference source that trends in data analytics and potential technologies that will facilitate insight in various domains of science, industry, business, and consumer applications. It also explores the latest concepts, algorithms, and techniques of deep learning and data mining and analysis. Highlighting a range of topics such as natural language processing, predictive analytics, and deep neural networks, this multi-

volume book is ideally designed for computer engineers, software developers, IT professionals, academicians, researchers, and upper-level students seeking current research on the latest trends in the field of deep learning.

TensorFlow for Deep Learning Oct 29 2020 Learn how to solve challenging machine learning problems with TensorFlow, Google's revolutionary new software library for deep learning. If you have some background in basic linear algebra and calculus, this practical book introduces machine-learning fundamentals by showing you how to design systems capable of detecting objects in images, understanding text, analyzing video, and predicting the properties of potential medicines. TensorFlow for Deep Learning teaches concepts through practical examples and helps you build knowledge of deep learning foundations from the ground up. It's ideal for practicing developers with experience designing software systems,

and useful for scientists and other professionals familiar with scripting but not necessarily with designing learning algorithms. Learn TensorFlow fundamentals, including how to perform basic computation Build simple learning systems to understand their mathematical foundations Dive into fully connected deep networks used in thousands of applications Turn prototypes into high-quality models with hyperparameter optimization Process images with convolutional neural networks Handle natural language datasets with recurrent neural networks Use reinforcement learning to solve games such as tic-tac-toe Train deep networks with hardware including GPUs and tensor processing units Efficient Processing of Deep Neural Networks Nov 10 2021 This book provides a structured treatment of the key principles and techniques for enabling efficient processing of deep neural networks (DNNs). DNNs are currently widely used for many artificial intelligence (AI) applications, including

computer vision, speech recognition, and robotics. While DNNs deliver state-of-the-art accuracy on many AI tasks, it comes at the cost of high computational complexity. Therefore, techniques that enable efficient processing of deep neural networks to improve metrics—such as energy-efficiency, throughput, and latency—without sacrificing accuracy or increasing hardware costs are critical to enabling the wide deployment of DNNs in AI systems. The book includes background on DNN processing; a description and taxonomy of hardware architectural approaches for designing DNN accelerators; key metrics for evaluating and comparing different designs; features of the DNN processing that are amenable to hardware/algorithm co-design to improve energy efficiency and throughput; and opportunities for applying new technologies. Readers will find a structured introduction to the field as well as a formalization and organization of key

concepts from contemporary works that provides insights that may spark new ideas.

Neural Networks with R Mar 27 2023 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.

Deep Learning Neural

Networks Feb 23 2023 Deep Learning Neural Networks is the fastest growing field in machine learning. It serves as a powerful computational tool for solving prediction, decision, diagnosis, detection and decision problems based on a well-defined computational architecture. It has been successfully applied to a broad field of applications ranging from computer security, speech recognition, image and video recognition to industrial fault detection, medical diagnostics and finance. This comprehensive textbook is the first in the new emerging field. Numerous case studies are succinctly demonstrated in the text. It is intended for use as a

one-semester graduate-level university text and as a textbook for research and development establishments in industry, medicine and financial research.

Python Deep Learning Jan 13 2022 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.

Deep Learning and Artificial Intelligence: A Beginners'

lotus.calit2.uci.edu

Guide to Neural Networks and Deep Learning

Jun 25 2020

Welcome to this book on Deep Learning and Neural Networks. We're going to be diving into what neural networks are, what the current neural networks out there do, with an API. Once we go over how everything works and how each of these new technologies work, we will go over the many different applications in general life and business.

There have been a lot of news stories about how there are going to be self-driving cars, machines that make their own products, and many other different applications of neural networks that make it sound like a vastly complicated machine. However, the tool of the neural network is a very simple tool. When you hear about the applications that are being created that utilize neural networks, you are actually hearing about the amount of work that went behind making a neural network do something that's complicated but not a complicated neural network.

Neural networks are extremely easy to understand as you will find throughout this book but the problem is that people have made them look complicated. Therefore, let's go ahead and demystify this subject so that you can get into the field of neural networks yourself and have some fun. Here's What's Included In This Book: What are Neural Networks?

Biological Neural Networks

Artificial Neural Networks

Keras Model and Layers

Different Deep Learning

Algorithms Benefits of Neural

Networks Business

Applications of Neural

Networks

Artificial Intelligence for

Humans Sep 20 2022 «

Artificial Intelligence for

Humans is a book series meant

to teach AI to those readers

who lack an extensive

mathematical background. The

reader only needs knowledge

of basic college algebra and

computer programming.

Additional topics are

thoroughly explained. Every

chapter also includes a

programming example.

Examples are currently provided in Java, C#, and Python. Other languages are planned. »--

Neural Network for Beginners

May 24 2020 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 **Deep Learning for Natural Language Processing** Apr 03 2021 Discover the concepts of deep learning used for natural language processing (NLP), with full-fledged examples of neural network models such as recurrent neural networks, long short-term memory networks, and sequence-2-sequence models. You'll start by covering the mathematical prerequisites and the fundamentals of deep learning and NLP with practical examples. The first three chapters of the book cover the basics of NLP, starting with word-vector representation before moving onto advanced algorithms. The final chapters focus entirely on implementation, and deal with sophisticated architectures such as RNN, LSTM, and Seq2seq, using Python tools: TensorFlow, and Keras. Deep Learning for Natural Language Processing follows a progressive approach and combines all the knowledge you have gained to build a question-answer chatbot

system. This book is a good starting point for people who want to get started in deep learning for NLP. All the code presented in the book will be available in the form of IPython notebooks and scripts, which allow you to try out the examples and extend them in interesting ways. What You Will Learn Gain the fundamentals of deep learning and its mathematical prerequisites Discover deep learning frameworks in Python Develop a chatbot Implement a research paper on sentiment classification Who This Book Is For Software developers who are curious to try out deep learning with NLP.

Learning Deep Learning Jan 01 2021 NVIDIA's Full-Color Guide to Deep Learning: All Students Need to Get Started and Get Results 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 suits seasoned developers, data scientists, analysts, but also those with no

prior machine learning or statisticsexperience. 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.

MATLAB Deep Learning Dec 12 2021 Get started with MATLAB for deep learning and AI with this in-depth primer. In this book, you start with machine learning fundamentals, then move on to neural networks, deep learning, and then

convolutional neural networks. In a blend of fundamentals and applications, MATLAB Deep Learning employs MATLAB as the underlying programming language and tool for the examples and case studies in this book. With this book, you'll be able to tackle some of today's real world big data, smart bots, and other complex data problems. You'll see how deep learning is a complex and more intelligent aspect of machine learning for modern smart data analysis and usage. What You'll Learn Use MATLAB for deep learning. Discover neural networks and multi-layer neural networks. Work with convolution and pooling layers. Build a MNIST example with these layers. Who This Book Is For Those who want to learn deep learning using MATLAB. Some MATLAB experience may be useful. **Deep Learning** Jul 31 2023 An introduction to a broad range of topics in deep learning, covering mathematical and conceptual background, deep learning techniques used in industry, and research

perspectives. “Written by three experts in the field, Deep Learning is the only comprehensive book on the subject.” —Elon Musk, cochair of OpenAI; cofounder and CEO of Tesla and SpaceX Deep learning is a form of machine learning that enables computers to learn from experience and understand the world in terms of a hierarchy of concepts. Because the computer gathers knowledge from experience, there is no need for a human computer operator to formally specify all the knowledge that the computer needs. The hierarchy of concepts allows the computer to learn complicated concepts by building them out of simpler ones; a graph of these hierarchies would be many layers deep. This book introduces a broad range of topics in deep learning. The text offers mathematical and conceptual background, covering relevant concepts in linear algebra, probability theory and information theory, numerical computation, and machine learning. It describes

deep learning techniques used by practitioners in industry, including deep feedforward networks, regularization, optimization algorithms, convolutional networks, sequence modeling, and practical methodology; and it surveys such applications as natural language processing, speech recognition, computer vision, online recommendation systems, bioinformatics, and videogames. Finally, the book offers research perspectives, covering such theoretical topics as linear factor models, autoencoders, representation learning, structured probabilistic models, Monte Carlo methods, the partition function, approximate inference, and deep generative models. Deep Learning can be used by undergraduate or graduate students planning careers in either industry or research, and by software engineers who want to begin using deep learning in their products or platforms. A website offers supplementary material for both readers and instructors.

Machine Intelligence Aug 20 2022 Artificial intelligence and machine learning are considered as hot technologies of this century. As these technologies move from research labs to enterprise data centers, the need for skilled professionals is continuously on the rise. This book is intended for IT and business professionals looking to gain proficiency in these technologies but are turned off by the complex mathematical equations. This book is also useful for students in the area of artificial intelligence and machine learning to gain a conceptual understanding of the algorithms and get an industry perspective. This book is an ideal place to start your journey as

- Core concepts of machine learning algorithms are explained in plain English using illustrations, data tables and examples
- Intuitive meaning of the mathematics behind popular machine learning algorithms explained
- Covers classical machine learning, neural networks and deep learning algorithms

At a

time when the IT industry is focusing on reskilling its vast human resources, Machine intelligence is a very timely publication. It has a simple approach that builds up from basics, which would help software engineers and students looking to learn about the field as well as those who might have started off without the benefit of a structured introduction or sound basics. Highly recommended. - Siddhartha S, Founder and CEO of Intain - Financial technology startup Suresh has written a very accessible book for practitioners. The book has depth yet avoids excessive mathematics. The coverage of the subject is very good and has most of the concepts required for understanding machine learning if someone is looking for depth. For senior management, it will provide a good overview. It is well written. I highly recommend it. - Whee Teck ONG, CEO of Trusted Source and VP of Singapore Computer Society

MATLAB Deep Learning Jul 19 2022 Get started with

MATLAB for deep learning and AI with this in-depth primer. In this book, you start with machine learning fundamentals, then move on to neural networks, deep learning, and then convolutional neural networks. In a blend of fundamentals and applications, MATLAB Deep Learning employs MATLAB as the underlying programming language and tool for the examples and case studies in this book. With this book, you'll be able to tackle some of today's real world big data, smart bots, and other complex data problems. You'll see how deep learning is a complex and more intelligent aspect of machine learning for modern smart data analysis and usage.

What You'll Learn Use MATLAB for deep learning Discover neural networks and multi-layer neural networks Work with convolution and pooling layers Build a MNIST example with these layers Who This Book Is For Those who want to learn deep learning using MATLAB. Some MATLAB experience may be useful.

Deep Learning Essentials Aug 08 2021 Get to grips with the essentials of deep learning by leveraging the power of Python Key Features Your one-stop solution to get started with the essentials of deep learning and neural network modeling Train different kinds of neural networks to tackle various problems in Natural Language Processing, computer vision, speech recognition, and more Covers popular Python libraries such as Tensorflow, Keras, and more, along with tips on training, deploying and optimizing your deep learning models in the best possible manner Book Description Deep Learning a trending topic in the field of Artificial Intelligence today and can be considered to be an advanced form of machine learning, which is quite tricky to master. This book will help you take your first steps in training efficient deep learning models and applying them in various practical scenarios. You will model, train, and deploy different kinds of neural networks such as Convolutional

Neural Network, Recurrent Neural Network, and will see some of their applications in real-world domains including computer vision, natural language processing, speech recognition, and so on. You will build practical projects such as chatbots, implement reinforcement learning to build smart games, and develop expert systems for image captioning and processing. Popular Python library such as TensorFlow is used in this book to build the models. This book also covers solutions for different problems you might come across while training models, such as noisy datasets, small datasets, and more. This book does not assume any prior knowledge of deep learning. By the end of this book, you will have a firm understanding of the basics of deep learning and neural network modeling, along with their practical applications. What you will learn Get to grips with the core concepts of deep learning and neural networks Set up deep learning library such as TensorFlow Fine-tune your

deep learning models for NLP and Computer Vision applications Unify different information sources, such as images, text, and speech through deep learning Optimize and fine-tune your deep learning models for better performance Train a deep reinforcement learning model that plays a game better than humans Learn how to make your models get the best out of your GPU or CPU Who this book is for Aspiring data scientists and machine learning experts who have limited or no exposure to deep learning will find this book to be very useful. If you are looking for a resource that gets you up and running with the fundamentals of deep learning and neural networks, this book is for you. As the models in the book are trained using the popular Python-based libraries such as Tensorflow and Keras, it would be useful to have sound programming knowledge of Python.

Grokking Deep Learning Apr 15 2022 Summary Grokking Deep Learning teaches you to

build deep learning neural networks from scratch! In his engaging style, seasoned deep learning expert Andrew Trask shows you the science under the hood, so you grok for yourself every detail of training neural networks. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Deep learning, a branch of artificial intelligence, teaches computers to learn by using neural networks, technology inspired by the human brain. Online text translation, self-driving cars, personalized product recommendations, and virtual voice assistants are just a few of the exciting modern advancements possible thanks to deep learning. About the Book Grokking Deep Learning teaches you to build deep learning neural networks from scratch! In his engaging style, seasoned deep learning expert Andrew Trask shows you the science under the hood, so you grok for yourself every detail of training neural networks.

Using only Python and its math-supporting library, NumPy, you'll train your own neural networks to see and understand images, translate text into different languages, and even write like Shakespeare! When you're done, you'll be fully prepared to move on to mastering deep learning frameworks. What's inside The science behind deep learning Building and training your own neural networks Privacy concepts, including federated learning Tips for continuing your pursuit of deep learning About the Reader For readers with high school-level math and intermediate programming skills. About the Author Andrew Trask is a PhD student at Oxford University and a research scientist at DeepMind. Previously, Andrew was a researcher and analytics product manager at Digital Reasoning, where he trained the world's largest artificial neural network and helped guide the analytics roadmap for the Synthesys cognitive computing platform. Table of Contents Introducing deep

learning: why you should learn it
Fundamental concepts: how do machines learn?
Introduction to neural prediction: forward propagation
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Learning multiple weights at a time: generalizing gradient descent
Building your first deep neural network: introduction to backpropagation
How to picture neural networks: in your head and on paper
Learning signal and ignoring noise: introduction to regularization and batching
Modeling probabilities and nonlinearities: activation functions
Neural learning about edges and corners: intro to convolutional neural networks
Neural networks that understand language: king - man + woman == ?
Neural networks that write like Shakespeare: recurrent layers for variable-length data
Introducing automatic optimization: let's build a deep learning framework
Learning to write like Shakespeare: long short-term memory
Deep

learning on unseen data:
introducing federated learning
Where to go from here: a brief guide

Deep Learning and Convolutional Neural Networks for Medical Image Computing
Apr 23 2020
This book presents a detailed review of the state of the art in deep learning approaches for semantic object detection and segmentation in medical image computing, and large-scale radiology database mining. A particular focus is placed on the application of convolutional neural networks, with the theory supported by practical examples. Features: highlights how the use of deep neural networks can address new questions and protocols, as well as improve upon existing challenges in medical image computing; discusses the insightful research experience of Dr. Ronald M. Summers; presents a comprehensive review of the latest research and literature; describes a range of different methods that make use of deep learning for object or landmark detection

tasks in 2D and 3D medical imaging; examines a varied selection of techniques for semantic segmentation using deep learning principles in medical imaging; introduces a novel approach to interleaved text and image deep mining on a large-scale radiology image database.

The Principles of Deep Learning Theory Apr 27 2023

This volume develops an effective theory approach to understanding deep neural networks of practical relevance.

Introduction to Deep Learning and Neural Networks with Python™ Jan 25 2023

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

Advanced Applied Deep Learning Jul 27 2020 Develop and optimize deep learning models with advanced architectures. This book teaches you the intricate

details and subtleties of the algorithms that are at the core of convolutional neural networks. In *Advanced Applied Deep Learning*, you will study advanced topics on CNN and object detection using Keras and TensorFlow. Along the way, you will look at the fundamental operations in CNN, such as convolution and pooling, and then look at more advanced architectures such as inception networks, resnets, and many more. While the book discusses theoretical topics, you will discover how to work efficiently with Keras with many tricks and tips, including how to customize logging in Keras with custom callback classes, what is eager execution, and how to use it in your models. Finally, you will study how object detection works, and build a complete implementation of the YOLO (you only look once) algorithm in Keras and TensorFlow. By the end of the book you will have implemented various models in Keras and learned many advanced tricks that will bring your skills to the next

level. What You Will Learn See how convolutional neural networks and object detection work Save weights and models on disk Pause training and restart it at a later stage Use hardware acceleration (GPUs) in your code Work with the Dataset TensorFlow abstraction and use pre-trained models and transfer learning Remove and add layers to pre-trained networks to adapt them to your specific project Apply pre-trained models such as Alexnet and VGG16 to new datasets Who This Book Is For Scientists and researchers with intermediate-to-advanced Python and machine learning know-how. Additionally, intermediate knowledge of Keras and TensorFlow is expected.

[Multivariate Statistical Machine Learning Methods for Genomic Prediction](#) May 17

2022 This book is open access under a CC BY 4.0 license This open access book brings together the latest genome base prediction models currently being used by statisticians, breeders and data

scientists. It provides an accessible way to understand the theory behind each statistical learning tool, the required pre-processing, the basics of model building, how to train statistical learning methods, the basic R scripts needed to implement each statistical learning tool, and the output of each tool. To do so, for each tool the book provides background theory, some elements of the R statistical software for its implementation, the conceptual underpinnings, and at least two illustrative examples with data from real-world genomic selection experiments. Lastly, worked-out examples help readers check their own comprehension. The book will greatly appeal to readers in plant (and animal) breeding, geneticists and statisticians, as it provides in a very accessible way the necessary theory, the appropriate R code, and illustrative examples for a complete understanding of each statistical learning tool. In addition, it weighs the advantages and disadvantages

of each tool.

Deep Learning for Computer

Vision Aug 27 2020 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.

Applied Neural Networks with TensorFlow 2 Feb 11 2022

Implement deep learning applications using TensorFlow while learning the “why” through in-depth conceptual explanations. You’ll start by learning what deep learning offers over other machine learning models. Then familiarize yourself with several technologies used to create deep learning models. While some of these technologies are complementary, such as Pandas, Scikit-Learn, and

Numpy—others are competitors, such as PyTorch, Caffe, and Theano. This book clarifies the positions of deep learning and Tensorflow among their peers. You'll then work on supervised deep learning models to gain applied experience with the technology. A single-layer of multiple perceptrons will be used to build a shallow neural network before turning it into a deep neural network. After showing the structure of the ANNs, a real-life application will be created with Tensorflow 2.0 Keras API. Next, you'll work on data augmentation and batch normalization methods. Then, the Fashion MNIST dataset will be used to train a CNN. CIFAR10 and Imagenet pre-trained models will be loaded to create already advanced CNNs. Finally, move into theoretical applications and unsupervised learning with auto-encoders and reinforcement learning with tf-agent models. With this book, you'll delve into applied deep learning practical functions and build a wealth of

knowledge about how to use TensorFlow effectively. What You'll Learn Compare competing technologies and see why TensorFlow is more popular Generate text, image, or sound with GANs Predict the rating or preference a user will give to an item Sequence data with recurrent neural networks Who This Book Is For Data scientists and programmers new to the fields of deep learning and machine learning APIs.

Neural Networks and Deep Learning Sep 01 2023 This book covers both classical and modern models in deep learning. The primary focus is on the theory and algorithms of deep learning. The theory and algorithms of neural networks are particularly important for understanding important concepts, so that one can understand the important design concepts of neural architectures in different applications. Why do neural networks work? When do they work better than off-the-shelf machine-learning models? When is depth useful? Why is

training neural networks so hard? What are the pitfalls? The book is also rich in discussing different applications in order to give the practitioner a flavor of how neural architectures are designed for different types of problems. Applications associated with many different areas like recommender systems, machine translation, image captioning, image classification, reinforcement-learning based gaming, and text analytics are covered. The chapters of this book span three categories: The basics of neural networks: Many traditional machine learning models can be understood as special cases of neural networks. An emphasis is placed in the first two chapters on understanding the relationship between traditional machine learning and neural networks. Support vector machines, linear/logistic regression, singular value decomposition, matrix factorization, and recommender systems are shown to be special cases of

neural networks. These methods are studied together with recent feature engineering methods like word2vec. Fundamentals of neural networks: A detailed discussion of training and regularization is provided in Chapters 3 and 4. Chapters 5 and 6 present radial-basis function (RBF) networks and restricted Boltzmann machines. Advanced topics in neural networks: Chapters 7 and 8 discuss recurrent neural networks and convolutional neural networks. Several advanced topics like deep reinforcement learning, neural Turing machines, Kohonen self-organizing maps, and generative adversarial networks are introduced in Chapters 9 and 10. The book is written for graduate students, researchers, and practitioners. Numerous exercises are available along with a solution manual to aid in classroom teaching. Where possible, an application-centric view is highlighted in order to provide an understanding of the practical uses of each class of

techniques.

Hands-On Deep Learning for Games Jul 07 2021 Understand

the core concepts of deep learning and deep reinforcement learning by applying them to develop games Key Features Apply the power of deep learning to complex reasoning tasks by building a Game AI Exploit the most recent developments in machine learning and AI for building smart games Implement deep learning models and neural networks with Python Book Description The number of applications of deep learning and neural networks has multiplied in the last couple of years. Neural nets has enabled significant breakthroughs in everything from computer vision, voice generation, voice recognition and self-driving cars. Game development is also a key area where these techniques are being applied. This book will give an in depth view of the potential of deep learning and neural networks in game development. We will take a look at the foundations of

multi-layer perceptron's to using convolutional and recurrent networks. In applications from GANs that create music or textures to self-driving cars and chatbots. Then we introduce deep reinforcement learning through the multi-armed bandit problem and other OpenAI Gym environments. As we progress through the book we will gain insights about DRL techniques such as Motivated Reinforcement Learning with Curiosity and Curriculum Learning. We also take a closer look at deep reinforcement learning and in particular the Unity ML-Agents toolkit. By the end of the book, we will look at how to apply DRL and the ML-Agents toolkit to enhance, test and automate your games or simulations. Finally, we will cover your possible next steps and possible areas for future learning. What you will learn Learn the foundations of neural networks and deep learning. Use advanced neural network architectures in applications to create music, textures, self driving cars and

chatbots. Understand the basics of reinforcement and DRL and how to apply it to solve a variety of problems. Working with Unity ML-Agents toolkit and how to install, setup and run the kit. Understand core concepts of DRL and the differences between discrete and continuous action environments. Use several advanced forms of learning in various scenarios from developing agents to testing games. Who this book is for This books is for game developers who wish to create highly interactive games by leveraging the power of machine and deep learning. No prior knowledge of machine learning, deep learning or neural networks is required this book will teach those concepts from scratch. A good understanding of Python is required.

Learn Keras for Deep Neural Networks Oct 10 2021 Learn, understand, and implement deep neural networks in a math- and programming-friendly approach using Keras

and Python. The book focuses on an end-to-end approach to developing supervised learning algorithms in regression and classification with practical business-centric use-cases implemented in Keras. The overall book comprises three sections with two chapters in each section. The first section prepares you with all the necessary basics to get started in deep learning. Chapter 1 introduces you to the world of deep learning and its difference from machine learning, the choices of frameworks for deep learning, and the Keras ecosystem. You will cover a real-life business problem that can be solved by supervised learning algorithms with deep neural networks. You'll tackle one use case for regression and another for classification leveraging popular Kaggle datasets. Later, you will see an interesting and challenging part of deep learning: hyperparameter tuning; helping you further improve your models when building robust deep learning applications. Finally, you'll

further hone your skills in deep learning and cover areas of active development and research in deep learning. At the end of Learn Keras for Deep Neural Networks, you will have a thorough understanding of deep learning principles and have practical hands-on experience in developing enterprise-grade deep learning solutions in Keras. What You'll Learn Master fast-paced practical deep learning concepts with math- and programming-friendly abstractions. Design, develop, train, validate, and deploy deep neural networks using the Keras framework Use best practices for debugging and validating deep learning models Deploy and integrate deep learning as a service into a larger software service or product Extend deep learning principles into other popular frameworks Who This Book Is For Software engineers and data engineers with basic programming skills in any language and who are keen on exploring deep learning for a career move or an enterprise

project.

Deep Learning: Practical Neural Networks with Java Sep 08 2021 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

Strengthening Deep Neural Networks

Nov 22 2022 As deep neural networks (DNNs) become increasingly common in real-world applications, the potential to deliberately "fool" them with data that wouldn't trick a human presents a new attack vector. This practical book examines real-world scenarios where DNNs—the algorithms intrinsic to much of AI—are used daily to process image, audio, and video data. Author Katy Warr considers attack motivations, the risks posed by this adversarial input, and methods for increasing AI robustness to these attacks. If you're a data scientist developing DNN algorithms, a security architect interested in how to make AI systems more resilient to attack, or someone fascinated by the differences between artificial and biological perception, this book is for you. Delve into DNNs and discover how they could be tricked by adversarial input

Investigate methods used to generate adversarial input capable of fooling DNNs Explore real-world scenarios and model the adversarial threat Evaluate neural network robustness; learn methods to increase resilience of AI systems to adversarial data Examine some ways in which AI might become better at mimicking human perception in years to come

Neural Networks and Deep Learning

Jun 29 2023 Ready to crank up a neural network to get your self-driving car pick up the kids from school? Want to add 'Deep Learning' to your LinkedIn profile? Well, hold on there... Before you embark on your epic journey into the world of deep learning, there is basic theory to march through first! Take a step-by-step journey through the basics of Neural Networks and Deep Learning, made so simple that...even your granny could understand it! What you will gain from this book: * A deep understanding of how a Neural Network and Deep Learning work * A basics comprehension

on how to build a Deep Neural Network from scratch Who this book is for: * Beginners who want to approach the topic, but are too afraid of complex math to start! What's Inside? * A brief introduction to Machine Learning * Two main Types of Machine Learning Algorithms * A practical example of Unsupervised Learning * What are Neural Networks? * McCulloch-Pitts's Neuron * Types of activation function * Types of network architectures * Learning processes * Advantages and disadvantages * Let us give a memory to our Neural Network * The example of book writing Software * Deep learning: the ability of learning to learn * How does

Deep Learning work? * Main architectures and algorithms * Main types of DNN * Available Frameworks and libraries * Convolutional Neural Networks * Tunnel Vision * Convolution * The right Architecture for a Neural Network * Test your Neural Network * A general overview of Deep Learning * What are the limits of Deep Learning? * Deep Learning: the basics * Layers, Learning paradigms, Training, Validation * Main architectures and algorithms * Models for Deep Learning * Probabilistic graphic models * Restricted Boltzmann Machines * Deep Belief Networks * Available Frameworks and libraries * TensorFlow Hit download. Now!