Machine Learning Yearning

Computational Intelligence: An Introduction, Second Edition offers an in-depth exploration into the adaptive mechanisms that enable intelligent behaviour in complex and changing environments. The main focus of this text is centred on the computational modelling of biological and natural intelligent systems, encompassing swarm intelligence, fuzzy systems, artificial neutral networks, artificial immune systems and evolutionary computation. Engelbrecht provides readers with a wide knowledge of Computational Intelligence (CI) paradigms and algorithms; inviting readers to implement and problem solve real-world, complex problems within the CI development framework. This implementation framework will enable readers to tackle new problems without any difficulty through a single Java class as part of the CI library. Key features of this second edition include: A tutorial, hands-on based presentation of the material. State-of-the-art coverage of the most recent developments in computational intelligence with more elaborate discussions on intelligence and artificial intelligence (AI). New discussion of Darwinian evolution versus Lamarckian evolution, also including swarm robotics, hybrid systems and artificial immune systems. A section on how to perform empirical studies; topics including statistical analysis of stochastic algorithms, and an open source library of CI algorithms. Tables, illustrations, graphs, examples, assignments, Java code implementing the algorithms, and a complete CI implementation and experimental framework. Computational Intelligence: An Introduction, Second Edition is essential reading for third and fourth year undergraduate and postgraduate students studying CI. The first edition has been

prescribed by a number of overseas universities and is thus a valuable teaching tool. In addition, it will also be a useful resource for researchers in Computational Intelligence and Artificial Intelligence, as well as engineers, statisticians, operational researchers, and bioinformaticians with an interest in applying AI or CI to solve problems in their domains. Check out http://www.ci.cs.up.ac.za for examples, assignments and Java code implementing the algorithms. Providing a unique approach to machine learning, this text contains fresh and intuitive, yet rigorous, descriptions of all fundamental concepts necessary to conduct research, build products, tinker, and play. By prioritizing geometric intuition, algorithmic thinking, and practical real world applications in disciplines including computer vision, natural language processing, economics, neuroscience, recommender systems, physics, and biology, this text provides readers with both a lucid understanding of foundational material as well as the practical tools needed to solve real-world problems. With in-depth Python and MATLAB/OCTAVE-based computational exercises and a complete treatment of cutting edge numerical optimization techniques, this is an essential resource for students and an ideal reference for researchers and practitioners working in machine learning, computer science, electrical engineering, signal processing, and numerical optimization.

Introduces machine learning and its algorithmic paradigms, explaining the principles behind automated learning approaches and the considerations underlying their usage. This textbook presents a concise, accessible and engaging first introduction to deep learning, offering a wide range of connectionist models which represent the current state-of-the-

art. The text explores the most popular algorithms and architectures in a simple and intuitive style, explaining the mathematical derivations in a step-by-step manner. The content coverage includes convolutional networks, LSTMs, Word2vec, RBMs, DBNs, neural Turing machines, memory networks and autoencoders. Numerous examples in working Python code are provided throughout the book, and the code is also supplied separately at an accompanying website. Topics and features: introduces the fundamentals of machine learning, and the mathematical and computational prerequisites for deep learning; discusses feed-forward neural networks, and explores the modifications to these which can be applied to any neural network; examines convolutional neural networks, and the recurrent connections to a feed-forward neural network; describes the notion of distributed representations, the concept of the autoencoder, and the ideas behind language processing with deep learning; presents a brief history of artificial intelligence and neural networks, and reviews interesting open research problems in deep learning and connectionism. This clearly written and lively primer on deep learning is essential reading for graduate and advanced undergraduate students of computer science, cognitive science and mathematics, as well as fields such as linguistics, logic, philosophy, and psychology.

Practical Solutions from Preprocessing to Deep Learning
Machine Learning Engineering
Going from Idea to Product
Data Mining and Machine Learning
Facilitating Breakthrough
Machine Learning with R
TinyML

The most comprehensive book on the engineering aspects of building reliable AI systems. "If you intend to use machine learning to solve business problems at scale, I'm delighted you got your hands on this book." -Cassie Kozyrkov, Chief Decision Scientist at Google "Foundational work about the reality of building machine learning models in production." -Karolis Urbonas, Head of Machine Learning and Science at Amazon

You don't have to know everything about a car to drive one, and you don't need to know everything about Ruby to start programming with it. Written for both experienced and new programmers alike, Learning Ruby is a just-get-in-and-drive book -- a hands-on tutorial that offers lots of Ruby programs and lets you know how and why they work, just enough to get you rolling down the road. Interest in Ruby stems from the popularity of Rails, the web development framework that's attracting new devotees and refugees from Java and PHP. But there are plenty of other uses for this versatile language. The best way to learn is to just try the code! You'll find examples on nearly every page of this book that you can imitate and hack. Briefly, this book: Outlines many of the most important features of Ruby Demonstrates how to use conditionals, and how to manipulate strings in Ruby. Includes a section on regular expressions Describes how to use operators, basic math, functions from the Math

module, rational numbers, etc. Talks you through Ruby arrays, and demonstrates hashes in detail Explains how to process files with Ruby Discusses Ruby classes and modules (mixins) in detail, including a brief introduction to object-oriented programming (OOP) Introduces processing XML, the Tk toolkit, RubyGems, reflection, RDoc, embedded Ruby, metaprogramming, exception handling, and other topics Acquaints you with some of the essentials of Rails, and includes a short Rails tutorial. Each chapter concludes with a set of review questions, and appendices provide you with a glossary of terms related to Ruby programming, plus reference material from the book in one convenient location. If you want to take Ruby out for a drive, Learning Ruby holds the keys.

This textbook offers a comprehensive introduction to Machine Learning techniques and algorithms. This Third Edition covers newer approaches that have become highly topical, including deep learning, and auto-encoding, introductory information about temporal learning and hidden Markov models, and a much more detailed treatment of reinforcement learning. The book is written in an easy-to-understand manner with many examples and pictures, and with a lot of practical advice and discussions of simple applications. The main topics include Bayesian classifiers, nearest-neighbor classifiers, linear and polynomial classifiers, decision

trees, rule-induction programs, artificial neural networks, support vector machines, boosting algorithms, unsupervised learning (including Kohonen networks and auto-encoding), deep learning, reinforcement learning, temporal learning (including long short-term memory), hidden Markov models, and the genetic algorithm. Special attention is devoted to performance evaluation, statistical assessment, and to many practical issues ranging from feature selection and feature construction to bias, context, multi-label domains, and the problem of imbalanced classes.

AI is radically transforming business. Are you ready? Look around you. Artificial intelligence is no longer just a futuristic notion. It's here right now--in software that senses what we need, supply chains that "think" in real time, and robots that respond to changes in their environment. Twenty-first-century pioneer companies are already using AI to innovate and grow fast. The bottom line is this: Businesses that understand how to harness AI can surge ahead. Those that neglect it will fall behind. Which side are you on? In Human + Machine, Accenture leaders Paul R. Daugherty and H. James (Jim) Wilson show that the essence of the AI paradigm shift is the transformation of all business processes within an organization--whether related to breakthrough innovation, everyday customer service, or personal productivity habits. As humans and smart machines

collaborate ever more closely, work processes become more fluid and adaptive, enabling companies to change them on the fly--or to completely reimagine them. AI is changing all the rules of how companies operate. Based on the authors' experience and research with 1,500 organizations, the book reveals how companies are using the new rules of AI to leap ahead on innovation and profitability, as well as what you can do to achieve similar results. It describes six entirely new types of hybrid human + machine roles that every company must develop, and it includes a "leader's guide" with the five crucial principles required to become an AI-fueled business. Human + Machine provides the missing and much-needed management playbook for success in our new age of AI. BOOK PROCEEDS FOR THE AI GENERATION The authors' goal in publishing Human + Machine is to help executives, workers, students and others navigate the changes that AI is making to business and the economy. They believe AI will bring innovations that truly improve the way the world works and lives. However, AI will cause disruption, and many people will need education, training and support to prepare for the newly created jobs. To support this need, the authors are donating the royalties received from the sale of this book to fund education and retraining programs focused on developing fusion skills for the age of artificial

intelligence.

An Introduction to Machine Learning

Power, Illusion and Control of Predictive Algorithms

Understanding Machine Learning

The History of Personalized Learning

The Art and Science of Algorithms that Make Sense of Data

Grokking Machine Learning

Learning Ruby

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

Python and its math-supporting library, NumPy, you'll train your own neural networks to see and understand images, translate text into different languages, and even write like Shakespeare! When you're done, you'll be fully prepared to move on to mastering deep learning frameworks. What's inside The science behind deep learning Building and training your own neural networks Privacy concepts, including federated learning Tips for continuing your pursuit of deep learning About the Reader For readers with high school-level math and intermediate programming skills. About the Author Andrew Trask is a PhD student at Oxford University and a research scientist at DeepMind. Previously, Andrew was a researcher and analytics product manager at Digital Reasoning, where he trained the world's largest artificial neural network and helped guide the analytics roadmap for the Synthesys cognitive computing platform. Table of Contents Introducing deep learning: why you should learn it Fundamental concepts: how do machines learn? Introduction to neural prediction: forward propagation Introduction to neural learning: gradient descent Learning multiple weights at a time: generalizing gradient descent Building your first deep neural network: introduction to backpropagation How to picture neural networks: in your head and on paper Learning signal and ignoring noise:introduction to regularization and batching Modeling probabilities and nonlinearities: activation functions Neural

learning about edges and corners: intro to convolutional neural networks Neural networks that understand language: king - man + woman = = ? Neural networks that write like Shakespeare: recurrent layers for variable-length data Introducing automatic optimization: let's build a deep learning framework Learning to write like Shakespeare: long short-term memory Deep learning on unseen data: introducing federated learning Where to go from here: a brief guide Advances and Applications in Mobile Computing offers guidelines on how mobile software services can be used in order to simplify the mobile users' life. The main contribution of this book is enhancing mobile software application development stages as analysis, design, development and test. Also, recent mobile network technologies such as algorithms, decreasing energy consumption in mobile network, and fault tolerance in distributed mobile computing are the main concern of the first section. In the mobile software life cycle section, the chapter on human computer interaction discusses mobile device handset design strategies, following the chapters on mobile application testing strategies. The last section, mobile applications as service, covers different mobile solutions and different application sectors.

Provides a practical guide to get started and execute on machine learning within a few days without necessarily knowing much about machine learning.The first five chapters are enough to get

you started and the next few chapters provide you a good feel of more advanced topics to pursue. "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.

Machine Learning For Dummies

A Visual, Interactive Guide to Artificial Intelligence

Ruby and Cocoa on OS X

Machine Learning with TensorFlow Lite on Arduino and Ultra-Low-Power Microcontrollers

Advances and Applications in Mobile Computing

In AI We Trust

A Framework for Better Human Experiences and Business Success

With the resurgence of neural networks in the 2010s, deep learning has become essential for machine learning practitioners and even many software engineers. This book provides a comprehensive introduction

for data scientists and software engineers with machine learning experience. You'll start with deep learning basics and move quickly to the details of important advanced architectures, implementing everything from scratch along the way. Author Seth Weidman shows you how neural networks work using a first principles approach. You'll learn how to apply multilayer neural networks, convolutional neural networks, and recurrent neural networks from the ground up. With a thorough understanding of how neural networks work mathematically, computationally, and conceptually, you'll be set up for success on all future deep learning projects. This book provides: Extremely clear and thorough mental models—accompanied by working code examples and mathematical explanations—for understanding neural networks Methods for implementing multilayer neural networks from scratch, using an easy-to-understand object-oriented framework Working implementations and clear-cut explanations of convolutional and recurrent neural networks Implementation of these neural network concepts using the popular PyTorch framework

This is not a traditional book. The book has a lot of code. If you don't like the code first approach do not buy this book. Making code available on Github is not an option. This book is for people who have some theoretical knowledge of machine learning and deep learning and want to dive into applied machine learning. The book doesn't explain the algorithms but is more oriented towards how and what should you use to solve machine learning and deep learning problems. The book is not for you if you are looking for pure basics. The book is for you if you are looking for guidance on approaching machine learning problems. The book is best enjoyed with a cup of coffee and a laptop/workstation where you can code along. Table of contents: - Setting up your working environment - Supervised vs unsupervised learning - Cross-validation - Evaluation metrics - Arranging machine learning projects - Approaching categorical variables - Feature engineering - Feature selection - Hyperparameter optimization - Approaching image classification & segmentation - Approaching text

classification/regression - Approaching ensembling and stacking - Approaching reproducible code & model serving There are no sub-headings. Important terms are written in bold. I will be answering all your queries related to the book and will be making YouTube tutorials to cover what has not been discussed in the book. To ask questions/doubts, visit this link: https://bit.ly/aamlquestions And Subscribe to my youtube channel: https://bit.ly/abhitubesub Learn the skills necessary to design, build, and deploy applications powered by machine learning (ML). Through the course of this hands-on book, you'll build an example ML-driven application from initial idea to deployed product. Data scientists, software engineers, and product managers—including experienced practitioners and novices alike—will learn the tools, best practices, and challenges involved in building a real-world ML application step by step. Author Emmanuel Ameisen, an experienced data scientist who led an AI education program, demonstrates practical ML concepts using code snippets, illustrations, screenshots, and interviews with industry leaders. Part I teaches you how to plan an ML application and measure success. Part II explains how to build a working ML model. Part III demonstrates ways to improve the model until it fulfills your original vision. Part IV covers deployment and monitoring strategies. This book will help you: Define your product goal and set up a machine learning problem Build your first end-to-end pipeline quickly and acquire an initial dataset Train and evaluate your ML models and address performance bottlenecks Deploy and monitor your models in a production environment
In The Selfish Gene, Richard Dawkins crystallized the gene's eye view of evolution developed by W.D. Hamilton and others. The book provoked widespread and heated debate. Written in part as a response, The Extended Phenotype gave a deeper clarification of the central concept of the gene as the unit of selection; but it did much more besides. In it, Dawkins extended the gene's eye view to argue that the genes that sit within an organism have an influence that reaches out beyond the visible traits in that body - the phenotype - to the wider

environment, which can include other individuals. So, for instance, the genes of the beaver drive it to gather twigs to produce the substantial physical structure of a dam; and the genes of the cuckoo chick produce effects that manipulate the behaviour of the host bird, making it nurture the intruder as one of its own. This notion of the extendedphenotype has proved to be highly influential in the way we understand evolution and the natural world. It represents a key scientific contribution to evolutionary biology, and it continues to play an important role in research in the life sciences. The Extended Phenotype is a conceptually deep book that forms important reading for biologists and students. But Dawkins' clear exposition is accessible to all who are prepared to put in a little effort. Oxford Landmark Science books are 'must-read' classics of modern science writing which have crystallized big ideas, and shaped the way we think.

Building Machine Learning Systems with Python

Practical Machine Learning for Computer Vision

A Practical Theory of Programming

Human + Machine

Building with Python from First Principles

Theory and Practice of Neural Networks, Computer Vision, Nlp, and Transformers Using Tensorflow

A Step-by-Step Guide to Learning and Implementing Deep Learning Models Using R

Covering all the main approaches in state-of-the-art machine learning research, this will set a new standard as an introductory textbook.

Making progress on complex, problematic situations requires a new approach to working together: transformative facilitation, a structured and creative process for removing the obstacles to fluid forward movement. It is becoming less straightforward for people to move forward together. They face increasing complexity and decreasing control. They need to work with more people from across more divides. In such situations, the most common ways of advancing—some people telling others what to do, or everyone just

doing what they think they need to—aren't adequate. One better way is through facilitating. But the most common approaches to facilitating—bossy vertical directing from above or collegial horizontal accompanying from alongside—aren't adequate. They often leave the participants frustrated and yearning for breakthrough. This book describes a new approach: transformative facilitation. It doesn't choose either the bossy vertical or the collegial horizontal approach: it cycles back and forth between them. Rather than forcing or cajoling, the facilitator removes the obstacles that stand in the way of people contributing and connecting equitably. It enables people to bring their whole selves to the process. This book is for anyone who helps people work together to transform their situation, be it a professional facilitator, manager, consultant, coach, chairperson, organizer, mediator, stakeholder, or friend. It offers a broad and bold vision of the contribution that facilitation can make to helping people collaborate to make progress.

Deep learning networks are getting smaller. Much smaller. The Google Assistant team can detect words with a model just 14 kilobytes in size—small enough to run on a microcontroller. With this practical book you'll enter the field of TinyML, where deep learning and embedded systems combine to make astounding things possible with tiny devices. Pete Warden and Daniel Situnayake explain how you can train models small enough to fit into any environment. Ideal for software and hardware developers who want to build embedded systems using machine learning, this guide walks you through creating a series of TinyML projects, step-by-step. No machine learning or microcontroller experience is necessary. Build a speech recognizer, a camera that detects people, and a magic wand that responds to gestures Work with Arduino and ultra-low-power microcontrollers Learn the essentials of ML and how to train your own models Train models to understand audio, image, and accelerometer data Explore TensorFlow Lite for Microcontrollers, Google's toolkit for TinyML Debug applications and provide safeguards for privacy and security Optimize latency, energy usage,

and model and binary size

There are several theories of programming. The first usable theory, often called "Hoare's Logic", is still probably the most widely known. In it, a specification is a pair of predicates: a precondition and postcondition (these and all technical terms will be defined in due course). Another popular and closely related theory by Dijkstra uses the weakest precondition predicate transformer, which is a function from programs and postconditions to preconditions. Iones's Vienna Development Method has been used to advantage in some industries; in it, a specification is a pair of predicates (as in Hoare's Logic), but the second predicate is a relation. Temporal Logic is yet another formalism that introduces some special operators and quantifiers to describe some aspects of computation. The theory in this book is simpler than any of those just mentioned. In it, a specification is just a boolean expression. Refinement is just ordinary implication. This theory is also more general than those just mentioned, applying to both terminating and nonterminating computation, to both sequential and parallel computation, to both stand-alone and interactive computation. And it includes time bounds, both for algorithm classification and for tightly constrained real-time applications.

Introduction to Machine Learning with Python

Ethics and Data Science

Teaching Machines

From Logical Calculus to Artificial Intelligence

Machine Learning with Python Cookbook

Computational Intelligence

A Guide for Data Scientists

As the impact of data science continues to grow on society there is an increased need to discuss how data is appropriately used and how to address misuse. Yet, ethical principles for working with data have been available for decades. The real issue today is how to put those

principles into action. With this report, authors Mike Loukides, Hilary Mason, and DJ Patil examine practical ways for making ethical data standards part of your work every day. To help you consider all of possible ramifications of your work on data projects, this report includes: A sample checklist that you can adapt for your own procedures Five framing guidelines (the Five C's) for building data products: consent, clarity, consistency, control, and consequences Suggestions for building ethics into your data-driven culture Now is the time to invest in a deliberate practice of data ethics, for better products, better teams, and better outcomes. Get a copy of this report and learn what it takes to do good data science today.

One of Mark Cuban's top reads for better understanding A.I. (inc.com, 2021) Your comprehensive entry-level guide to machine learning While machine learning expertise doesn't quite mean you can create your own Turing Test-proof android—as in the movie Ex Machina—it is a form of artificial intelligence and one of the most exciting technological means of identifying opportunities and solving problems fast and on a large scale. Anyone who masters the principles of machine learning is mastering a big part of our tech future and opening up incredible new directions in careers that include fraud detection, optimizing search results, serving real-time ads, credit-scoring, building accurate and sophisticated pricing models—and way, way more. Unlike most machine learning books, the fully updated 2nd

Edition of Machine Learning For Dummies doesn't assume you have years of experience using programming languages such as Python (R source is also included in a downloadable form with comments and explanations), but lets you in on the ground floor, covering the entry-level materials that will get you up and running building models you need to perform practical tasks. It takes a look at the underlying—and fascinating—math principles that power machine learning but also shows that you don't need to be a math whiz to build fun new tools and apply them to your work and study. Understand the history of AI and machine learning Work with Python 3.8 and TensorFlow 2.x (and R as a download) Build and test your own models Use the latest datasets, rather than the worn out data found in other books Apply machine learning to real problems Whether you want to learn for college or to enhance your business or career performance, this friendly beginner's guide is your best introduction to machine learning, allowing you to become quickly confident using this amazing and fast-developing technology that's impacting lives for the better all over the world. Part of a series of specialized guides on System Center - this book focuses on troubleshooting Configuration Manager, which is used to manage a wide range of Microsoft client platforms, server platforms, and mobile devices. Series editor Mitch Tulloch and a team of System Center experts provide concise technical guidance as they step you through key troubleshooting tasks and solutions. Grokking Machine Learning presents machine learning

algorithms and techniques in a way that anyone can understand. This book skips the confused academic jargon and offers clear explanations that require only basic algebra. As you go, you'll build interesting projects with Python, including models for spam detection and image recognition. You'll also pick up practical skills for cleaning and preparing data.

Reimagining Work in the Age of AI

Machine Learning Refined

Fundamental Concepts and Algorithms

Foundations, Algorithms, and Applications

From Theory to Algorithms

The Language that Powers Rails

Recent Trends in Multi-user MIMO Communications

A pre-release edition enables developers to tap the author's unedited content while offering access to significant updates and the final ebook version, in a guide that explains how to develop application for Mac OS X with MacRuby and provides coverage of Interface Builder, the Cocoa libraries and more. Original.

One of the most persistent concerns about the future is whether it will be dominated by the predictive algorithms of AI – and, if so, what this will mean for our behaviour, for our institutions and for what it means to be human. AI changes our experience of time and the future and challenges our identities, yet we are blinded by its efficiency and fail to understand how it affects us. At the heart of our trust in AI lies a paradox: we leverage AI to increase our control over the future and uncertainty, while

at the same time the performativity of AI, the power it has to make us act in the ways it predicts, reduces our agency over the future. This happens when we forget that that we humans have created the digital technologies to which we attribute agency. These developments also challenge the narrative of progress, which played such a central role in modernity and is based on the hubris of total control. We are now moving into an era where this control is limited as AI monitors our actions, posing the threat of surveillance, but also offering the opportunity to reappropriate control and transform it into care. As we try to adjust to a world in which algorithms, robots and avatars play an ever-increasing role, we need to understand better the limitations of AI and how their predictions affect our agency, while at the same time having the courage to embrace the uncertainty of the future.

Machine learning has become an integral part of many commercial applications and research projects, but this field is not exclusive to large companies with extensive research teams. If you use Python, even as a beginner, this book will teach you practical ways to build your own machine learning solutions. With all the data available today, machine learning applications are limited only by your imagination. You'll learn the steps necessary to create a successful machine-learning application with Python and the scikit-learn library. Authors Andreas Müller and Sarah Guido focus on the practical aspects of using machine learning algorithms, rather than the math behind them. Familiarity with the NumPy and matplotlib

libraries will help you get even more from this book. With this book, you'll learn: Fundamental concepts and applications of machine learning Advantages and shortcomings of widely used machine learning algorithms How to represent data processed by machine learning, including which data aspects to focus on Advanced methods for model evaluation and parameter tuning The concept of pipelines for chaining models and encapsulating your workflow Methods for working with text data, including text-specific processing techniques Suggestions for improving your machine learning and data science skills

This practical guide provides nearly 200 self-contained recipes to help you solve machine learning challenges you may encounter in your daily work. If you're comfortable with Python and its libraries, including pandas and scikit-learn, you'll be able to address specific problems such as loading data, handling text or numerical data, model selection, and dimensionality reduction and many other topics. Each recipe includes code that you can copy and paste into a toy dataset to ensure that it actually works. From there, you can insert, combine, or adapt the code to help construct your application. Recipes also include a discussion that explains the solution and provides meaningful context. This cookbook takes you beyond theory and concepts by providing the nuts and bolts you need to construct working machine learning applications. You'll find recipes for: Vectors, matrices, and arrays Handling numerical and categorical data, text, images,

and dates and times Dimensionality reduction using
feature extraction or feature selection Model evaluation
and selection Linear and logical regression, trees and
forests, and k-nearest neighbors Support vector machines
(SVM), naïve Bayes, clustering, and neural networks
Saving and loading trained models
Deep Learning Illustrated
An Introduction
Deep Learning with Python
Grokking Deep Learning
Approaching (Almost) Any Machine Learning Problem
AI for People and Business
Foundations of Machine Learning, second edition
A new edition of a graduate-level machine learning
textbook that focuses on the analysis and theory of
algorithms. This book is a general introduction to
machine learning that can serve as a textbook for graduate
students and a reference for researchers. It covers
fundamental modern topics in machine learning while
providing the theoretical basis and conceptual tools
needed for the discussion and justification of algorithms. It
also describes several key aspects of the application of
these algorithms. The authors aim to present novel
theoretical tools and concepts while giving concise proofs
even for relatively advanced topics. Foundations of
Machine Learning is unique in its focus on the analysis
and theory of algorithms. The first four chapters lay the
theoretical foundation for what follows; subsequent
chapters are mostly self-contained. Topics covered include

the Probably Approximately Correct (PAC) learning framework; generalization bounds based on Rademacher complexity and VC-dimension; Support Vector Machines (SVMs); kernel methods; boosting; on-line learning; multi-class classification; ranking; regression; algorithmic stability; dimensionality reduction; learning automata and languages; and reinforcement learning. Each chapter ends with a set of exercises. Appendixes provide additional material including concise probability review. This second edition offers three new chapters, on model selection, maximum entropy models, and conditional entropy models. New material in the appendixes includes a major section on Fenchel duality, expanded coverage of concentration inequalities, and an entirely new entry on information theory. More than half of the exercises are new to this edition.

Written as a tutorial to explore and understand the power of R for machine learning. This practical guide that covers all of the need to know topics in a very systematic way. For each machine learning approach, each step in the process is detailed, from preparing the data for analysis to evaluating the results. These steps will build the knowledge you need to apply them to your own data science tasks.Intended for those who want to learn how to use R's machine learning capabilities and gain insight from your data. Perhaps you already know a bit about machine learning, but have never used R; or perhaps you know a little R but are new to machine learning. In either case, this book will get you up and running quickly. It

would be helpful to have a bit of familiarity with basic programming concepts, but no prior experience is required.

The fundamental algorithms in data mining and machine learning form the basis of data science, utilizing automated methods to analyze patterns and models for all kinds of data in applications ranging from scientific discovery to business analytics. This textbook for senior undergraduate and graduate courses provides a comprehensive, in-depth overview of data mining, machine learning and statistics, offering solid guidance for students, researchers, and practitioners. The book lays the foundations of data analysis, pattern mining, clustering, classification and regression, with a focus on the algorithms and the underlying algebraic, geometric, and probabilistic concepts. New to this second edition is an entire part devoted to regression methods, including neural networks and deep learning.

If you're an executive, manager, or anyone interested in leveraging AI within your organization, this is your guide. You'll understand exactly what AI is, learn how to identify AI opportunities, and develop and execute a successful AI vision and strategy. Alex Castrounis, business consultant and former IndyCar engineer and race strategist, examines the value of AI and shows you how to develop an AI vision and strategy that benefits both people and business. AI is exciting, powerful, and game changing—but too many AI initiatives end in failure. With this book, you'll explore the risks,

considerations, trade-offs, and constraints for pursuing an AI initiative. You'll learn how to create better human experiences and greater business success through winning AI solutions and human-centered products. Use the book's AIPB Framework to conduct end-to-end, goal-driven innovation and value creation with AI Define a goal-aligned AI vision and strategy for stakeholders, including businesses, customers, and users Leverage AI successfully by focusing on concepts such as scientific innovation and AI readiness and maturity Understand the importance of executive leadership for pursuing AI initiatives "A must read for business executives and managers interested in learning about AI and unlocking its benefits. Alex Castrounis has simplified complex topics so that anyone can begin to leverage AI within their organization." - Dan Park, GM & Director, Uber "Alex Castrounis has been at the forefront of helping organizations understand the promise of AI and leverage its benefits, while avoiding the many pitfalls that can derail success. In this essential book, he shares his expertise with the rest of us." - Dean Wampler, Ph.D., VP, Fast Data Engineering at Lightbend
Introduction to Deep Learning Using R
The Hundred-page Machine Learning Book
The Long Reach of the Gene
Building Machine Learning Powered Applications
MacRuby: The Definitive Guide
Introduction to Deep Learning
The Extended Phenotype

This practical book shows you how to employ machine learning models to extract information from images. ML engineers and data scientists will learn how to solve a variety of image problems including classification, object detection, autoencoders, image generation, counting, and captioning with proven ML techniques. This book provides a great introduction to end-to-end deep learning: dataset creation, data preprocessing, model design, model training, evaluation, deployment, and interpretability. Google engineers Valliappa Lakshmanan, Martin Görner, and Ryan Gillard show you how to develop accurate and explainable computer vision ML models and put them into large-scale production using robust ML architecture in a flexible and maintainable way. You'll learn how to design, train, evaluate, and predict with models written in TensorFlow or Keras. You'll learn how to: Design ML architecture for computer vision tasks Select a model (such as ResNet, SqueezeNet, or EfficientNet) appropriate to your task Create an end-to-end ML pipeline to train, evaluate, deploy, and explain your model Preprocess images for data augmentation and to support learnability Incorporate explainability and responsible AI best practices Deploy image models as web services or on edge devices Monitor and manage ML models This is a tutorial-driven and practical, but well-grounded book showcasing good Machine Learning practices. There will be an emphasis on using existing technologies instead of showing how to write your own implementations of algorithms. This book is a scenario-based, example-driven tutorial. By the end of the book you will have learnt critical aspects of Machine Learning Python projects and experienced the power of ML-based systems by actually working on them This book primarily targets Python developers who want to learn about and build Machine Learning into their projects, or who want to pro.
Summary Deep Learning with Python introduces the field of deep learning using the Python language and the powerful Keras library. Written by Keras creator and Google AI researcher François

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

Conference on Learning Representations (ICLR), and others. Table of Contents PART 1 - FUNDAMENTALS OF DEEP LEARNING: What is deep learning? Before we begin: the mathematical building blocks of neural networks Getting started with neural networks Fundamentals of machine learning PART 2 - DEEP LEARNING IN PRACTICE Deep learning for computer vision Deep learning for text and sequences Advanced deep-learning best practices Generative deep learning Conclusions appendix A - Installing Keras and its dependencies on Ubuntu appendix B - Running Jupyter notebooks on an EC2 GPU instance 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.

Deep Learning from Scratch

How to Remove Obstacles, Bridge Differences, and Move Forward Together

Microsoft System Center Troubleshooting Configuration Manager

Machine Learning

Learning Deep Learning

Deep Learning

How ed tech was born: Twentieth-century teaching machines--from Sidney Pressey's mechanized test-giver to B. F. Skinner's behaviorist bell-ringing box. Contrary to popular belief, ed tech did not begin with videos on the internet. The idea of technology that would allow students to "go at their own pace" did not originate in Silicon Valley. In Teaching Machines, education writer Audrey Watters offers a lively history of predigital educational technology, from Sidney Pressey's mechanized positive-reinforcement provider to B. F. Skinner's behaviorist bell-ringing box. Watters shows that these machines and the pedagogy that accompanied them sprang from ideas--bite-sized content, individualized instruction--that had legs and were later picked up by textbook publishers and early advocates for computerized learning. Watters pays

particular attention to the role of the media--newspapers, magazines, television, and film--in shaping people's perceptions of teaching machines as well as the psychological theories underpinning them. She considers these machines in the context of education reform, the political reverberations of Sputnik, and the rise of the testing and textbook industries. She chronicles Skinner's attempts to bring his teaching machines to market, culminating in the famous behaviorist's efforts to launch Didak 101, the "pre-verbal" machine that taught spelling. (Alternate names proposed by Skinner include "Autodidak," "Instructomat," and "Autostructor.") Telling these somewhat cautionary tales, Watters challenges what she calls "the teleology of ed tech"--the idea that not only is computerized education inevitable, but technological progress is the sole driver of events.

NVIDIA's Full-Color Guide to Deep Learning; All StudentsNeed 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 techniquesneeded 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, includingthe Transformer. He describes how these concepts are used to build modernnetworks for computer

vision and natural language processing (NLP), includingMask R-CNN, GPT, and BERT. And he explains how a natural language translatorand a system generating natural language descriptions of images. Throughout, Ekman provides concise, well-annotated code examples usingTensorFlow with Keras. Corresponding PyTorch examples are provided online, andthe book thereby covers the two dominating Python libraries for DL used inindustry and academia. He concludes with an introduction to neural architecturesearch (NAS), exploring important ethical issues and providing resources forfurther learning. Exploreand master core concepts: perceptrons, gradient-based learning, sigmoidneurons, and back propagation See how DL frameworks make it easier to developmore complicated and useful neural networks Discover how convolutional neuralnetworks (CNNs) revolutionize image classification and analysis Apply recurrentneural networks (RNNs) and long short-term memory (LSTM) to text and othervariable-length sequences Master NLP with sequence-to-sequence networks and theTransformer architecture Build applications for natural language translation andimage captioning

Understand deep learning, the nuances of its different models, and where these models can be applied. The abundance of data and demand for superior products/services have driven the development of advanced computer science techniques, among them image and speech recognition. Introduction to Deep

Learning Using R provides a theoretical and practical understanding of the models that perform these tasks by building upon the fundamentals of data science through machine learning and deep learning. This step-by-step guide will help you understand the disciplines so that you can apply the methodology in a variety of contexts. All examples are taught in the R statistical language, allowing students and professionals to implement these techniques using open source tools. What You'll Learn Understand the intuition and mathematics that power deep learning models Utilize various algorithms using the R programming language and its packages Use best practices for experimental design and variable selection Practice the methodology to approach and effectively solve problems as a data scientist Evaluate the effectiveness of algorithmic solutions and enhance their predictive power Who This Book Is For Students, researchers, and data scientists who are familiar with programming using R. This book also is also of use for those who wish to learn how to appropriately deploy these algorithms in applications where they would be most useful.

This book emphasis on multi-user MIMO communication. It covers a collection of the major topics and issues in multi-user MIMO systems. Recent Trends in Multi-user MIMO Communications provides a tutorial overview of the latest technologies and research keys related to multi-user communication. This book is composed of seven chapters, each written by a different set

of authors. Features include: Fundamentals of multi-user MIMO communication, Random Beamforming in multi-user MIMO systems, LTE and LTE-Advanced framework, Interference cancellation in multi-user MIMO systems, Incorporation of multi-user capabilities in IEEE 802.11n/ac for WLAN systems, Physical layer security for multi-user MIMO communication, User selection based error probability of MIMO detector in multi-user MIMO systems.