

# Machine Learning With R Second Edition

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**Interpretable Machine Learning** Christoph Molnar 2019

**Machine Learning Using R** Karthik Ramasubramanian 2018-12-12 Examine the latest technological advancements in building a scalable machine-learning model with big data using R. This second edition shows you how to work with a machine-learning algorithm and use it to build a ML model from raw data. You will see how to use R programming with TensorFlow, thus avoiding the effort of learning Python if you are only comfortable with R. As in the first edition, the authors have kept the fine balance of theory and application of machine learning through various real-world use-cases which gives you a comprehensive collection of topics in machine learning. New chapters in this edition cover time series models and deep learning. What You'll Learn Understand machine learning algorithms using R Master the process of building machine-learning models Cover the theoretical foundations of machine-learning algorithms See industry focused real-world use cases Tackle time series modeling in R Apply deep learning using Keras and TensorFlow in R Who This Book is For Data scientists, data science professionals, and researchers in academia who want to understand the nuances of machine-learning approaches/algorithms in practice using R.

**Mastering Machine Learning Algorithms** Giuseppe Bonaccorso 2018-05-25 Explore and master the most important algorithms for solving complex machine learning problems. Key Features Discover high-performing machine learning algorithms and understand how they work in depth. One-stop solution to mastering supervised, unsupervised, and semi-supervised machine learning algorithms and their implementation. Master concepts related to algorithm tuning, parameter optimization, and more Book Description Machine learning is a subset of AI that aims to make modern-day computer systems smarter and more intelligent. The real power of machine learning resides in its algorithms, which make even the most difficult things capable of being handled by machines. However, with the advancement in the technology and requirements of data, machines will have to be smarter than they are today to meet the overwhelming data needs; mastering these algorithms and using them optimally is the need of the hour. Mastering Machine Learning Algorithms is your complete guide to quickly getting to grips with popular machine learning algorithms. You will be introduced to the most widely used algorithms in supervised, unsupervised, and semi-supervised machine learning, and will learn how to use them in the best possible manner. Ranging from Bayesian models to the MCMC algorithm to Hidden Markov models, this

book will teach you how to extract features from your dataset and perform dimensionality reduction by making use of Python-based libraries such as scikit-learn. You will also learn how to use Keras and TensorFlow to train effective neural networks. If you are looking for a single resource to study, implement, and solve end-to-end machine learning problems and use-cases, this is the book you need. What you will learn Explore how a ML model can be trained, optimized, and evaluated Understand how to create and learn static and dynamic probabilistic models Successfully cluster high-dimensional data and evaluate model accuracy Discover how artificial neural networks work and how to train, optimize, and validate them Work with Autoencoders and Generative Adversarial Networks Apply label spreading and propagation to large datasets Explore the most important Reinforcement Learning techniques Who this book is for This book is an ideal and relevant source of content for data science professionals who want to delve into complex machine learning algorithms, calibrate models, and improve the predictions of the trained model. A basic knowledge of machine learning is preferred to get the best out of this guide.

*Introduction to Machine Learning with Python* Andreas C. Müller 2016-09-26 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

**Machine Learning Algorithms** Giuseppe Bonaccorso 2017-07-24 Build strong foundation for entering the world of Machine Learning and data science with the help of this comprehensive guide About This Book Get started in the field of Machine Learning with the help of this solid, concept-rich, yet highly practical guide. Your one-stop solution for everything that matters in mastering the whats and whys of Machine Learning algorithms and their implementation. Get a solid foundation for your entry into Machine Learning by strengthening your roots (algorithms) with this comprehensive guide. Who This Book Is For This book is for IT professionals who want to enter the field of data science and are very new to Machine Learning. Familiarity with languages such as R and Python will be invaluable here. What You Will Learn Acquaint yourself with important elements of Machine Learning Understand the feature selection and feature engineering process Assess performance and error trade-offs for Linear Regression Build a data model and understand how it works by using different types of algorithm Learn to tune the parameters of Support Vector machines Implement clusters to a dataset Explore the concept of Natural Processing Language and Recommendation Systems Create a ML architecture from scratch. In Detail As the amount of data continues to grow at an almost incomprehensible rate, being able to understand and process data is becoming a key differentiator for competitive organizations. Machine learning applications are everywhere, from self-driving cars, spam detection, document search, and trading strategies, to speech recognition. This makes machine learning well-suited to the present-day era of Big Data and Data Science. The main challenge is how to transform data into actionable knowledge. In this book you will learn all the important Machine Learning algorithms that are

commonly used in the field of data science. These algorithms can be used for supervised as well as unsupervised learning, reinforcement learning, and semi-supervised learning. A few famous algorithms that are covered in this book are Linear regression, Logistic Regression, SVM, Naive Bayes, K-Means, Random Forest, TensorFlow, and Feature engineering. In this book you will also learn how these algorithms work and their practical implementation to resolve your problems. This book will also introduce you to the Natural Processing Language and Recommendation systems, which help you run multiple algorithms simultaneously. On completion of the book you will have mastered selecting Machine Learning algorithms for clustering, classification, or regression based on for your problem. Style and approach An easy-to-follow, step-by-step guide that will help you get to grips with real -world applications of Algorithms for Machine Learning.

**Practical Machine Learning in R** Fred Nwanganga 2020-06-10 Guides professionals and students through the rapidly growing field of machine learning with hands-on examples in the popular R programming language Machine learning—a branch of Artificial Intelligence (AI) which enables computers to improve their results and learn new approaches without explicit instructions—allows organizations to reveal patterns in their data and incorporate predictive analytics into their decision-making process. Practical Machine Learning in R provides a hands-on approach to solving business problems with intelligent, self-learning computer algorithms. Bestselling author and data analytics experts Fred Nwanganga and Mike Chapple explain what machine learning is, demonstrate its organizational benefits, and provide hands-on examples created in the R programming language. A perfect guide for professional self-taught learners or students in an introductory machine learning course, this reader-friendly book illustrates the numerous real-world business uses of machine learning approaches. Clear and detailed chapters cover data wrangling, R programming with the popular RStudio tool, classification and regression techniques, performance evaluation, and more. Explores data management techniques, including data collection, exploration and dimensionality reduction Covers unsupervised learning, where readers identify and summarize patterns using approaches such as apriori, eclat and clustering Describes the principles behind the Nearest Neighbor, Decision Tree and Naive Bayes classification techniques Explains how to evaluate and choose the right model, as well as how to improve model performance using ensemble methods such as Random Forest and XGBoost Practical Machine Learning in R is a must-have guide for business analysts, data scientists, and other professionals interested in leveraging the power of AI to solve business problems, as well as students and independent learners seeking to enter the field.

**Deep Learning** Ian Goodfellow 2016-11-10 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.

Introduction to Machine Learning Ethem Alpaydin 2014-08-29 The goal of machine learning is to program computers to use example data or past experience to solve a given problem. Many successful applications of machine learning exist already, including systems that analyze past sales data to predict customer behavior, optimize robot behavior so that a task can be completed using minimum resources, and extract knowledge from bioinformatics data. Introduction to Machine Learning is a comprehensive textbook on the subject, covering a broad array of topics not usually included in introductory machine learning texts. Subjects include supervised learning; Bayesian decision theory; parametric, semi-parametric, and nonparametric methods; multivariate analysis; hidden Markov models; reinforcement learning; kernel machines; graphical models; Bayesian estimation; and statistical testing. Machine learning is rapidly becoming a skill that computer science students must master before graduation. The third edition of Introduction to Machine Learning reflects this shift, with added support for beginners, including selected solutions for exercises and additional example data sets (with code available online). Other substantial changes include discussions of outlier detection; ranking algorithms for perceptrons and support vector machines; matrix decomposition and spectral methods; distance estimation; new kernel algorithms; deep learning in multilayered perceptrons; and the nonparametric approach to Bayesian methods. All learning algorithms are explained so that students can easily move from the equations in the book to a computer program. The book can be used by both advanced undergraduates and graduate students. It will also be of interest to professionals who are concerned with the application of machine learning methods.

*Reinforcement Learning, second edition* Richard S. Sutton 2018-11-13 The significantly expanded and updated new edition of a widely used text on reinforcement learning, one of the most active research areas in artificial intelligence. Reinforcement learning, one of the most active research areas in artificial intelligence, is a computational approach to learning whereby an agent tries to maximize the total amount of reward it receives while interacting with a complex, uncertain environment. In Reinforcement Learning, Richard Sutton and Andrew Barto provide a clear and simple account of the field's key ideas and algorithms. This second edition has been significantly expanded and updated, presenting new topics and updating coverage of other topics. Like the first edition, this second edition focuses on core online learning algorithms, with the more mathematical material set off in shaded boxes. Part I covers as much of reinforcement learning as possible without going beyond the tabular case for which exact solutions can be found. Many algorithms presented in this part are new to the second edition, including UCB, Expected Sarsa, and Double Learning. Part II extends these ideas to function approximation, with new sections on such topics as artificial neural networks and the Fourier basis, and offers expanded treatment of off-policy learning and policy-gradient methods. Part III has new chapters on reinforcement learning's relationships to psychology and neuroscience, as well as an updated case-studies chapter including AlphaGo and AlphaGo Zero, Atari game playing, and IBM Watson's wagering strategy. The final chapter discusses the future societal impacts of reinforcement learning.

**Machine Learning For Dummies** John Paul Mueller 2021-02-09 One of Mark Cuban's top reads for

Downloaded from [avenza-dev.avenza.com](https://avenza-dev.avenza.com)  
on September 27, 2022 by guest

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.

**Machine Learning for Absolute Beginners** Oliver Theobald 2018 "The manner in which computers are now able to mimic human thinking to process information is rapidly exceeding human capabilities in everything from chess to picking the winner of a song contest. In the modern age of machine learning, computers do not strictly need to receive an 'input command' to perform a task, but rather 'input data'. From the input of data they are able to form their own decisions and take actions virtually as a human world. But given it is a machine, it can consider many more scenarios and execute far more complicated calculations to solve complex problems. This is the element that excites data scientists and machine learning engineers the most. The ability to solve complex problems never before attempted. This book will dive in to introduce machine learning, and is ideal for beginners starting out in machine learning."--page 4 of cover.

*The Elements of Statistical Learning* Trevor Hastie 2013-11-11 During the past decade there has been an explosion in computation and information technology. With it have come vast amounts of data in a variety of fields such as medicine, biology, finance, and marketing. The challenge of understanding these data has led to the development of new tools in the field of statistics, and spawned new areas such as data mining, machine learning, and bioinformatics. Many of these tools have common underpinnings but are often expressed with different terminology. This book describes the important ideas in these areas in a common conceptual framework. While the approach is statistical, the emphasis is on concepts rather than mathematics. Many examples are given, with a liberal use of color graphics. It should be a valuable resource for statisticians and anyone interested in data mining in science or industry. The book's coverage is broad, from supervised learning (prediction) to unsupervised learning. The many topics include neural networks, support vector machines, classification trees and boosting--the first comprehensive treatment of this topic in any book. This major new edition features many topics not covered in the original, including graphical models, random forests, ensemble methods, least angle regression & path algorithms for the lasso, non-negative matrix factorization, and spectral clustering. There is also a chapter on methods for "wide" data ( $p$  bigger than  $n$ ), including multiple testing and false discovery rates. Trevor Hastie, Robert Tibshirani, and Jerome Friedman are professors of statistics

at Stanford University. They are prominent researchers in this area: Hastie and Tibshirani developed generalized additive models and wrote a popular book of that title. Hastie co-developed much of the statistical modeling software and environment in R/S-PLUS and invented principal curves and surfaces. Tibshirani proposed the lasso and is co-author of the very successful *An Introduction to the Bootstrap*. Friedman is the co-inventor of many data-mining tools including CART, MARS, projection pursuit and gradient boosting.

[Introduction to Machine Learning with R](#) Scott V. Burger 2018-03-07 Machine learning is an intimidating subject until you know the fundamentals. If you understand basic coding concepts, this introductory guide will help you gain a solid foundation in machine learning principles. Using the R programming language, you'll first start to learn with regression modelling and then move into more advanced topics such as neural networks and tree-based methods. Finally, you'll delve into the frontier of machine learning, using the caret package in R. Once you develop a familiarity with topics such as the difference between regression and classification models, you'll be able to solve an array of machine learning problems. Author Scott V. Burger provides several examples to help you build a working knowledge of machine learning. Explore machine learning models, algorithms, and data training Understand machine learning algorithms for supervised and unsupervised cases Examine statistical concepts for designing data for use in models Dive into linear regression models used in business and science Use single-layer and multilayer neural networks for calculating outcomes Look at how tree-based models work, including popular decision trees Get a comprehensive view of the machine learning ecosystem in R Explore the powerhouse of tools available in R's caret package

*Machine Learning with R* Brett Lantz 2019-04-15 Solve real-world data problems with R and machine learning Key Features Third edition of the bestselling, widely acclaimed R machine learning book, updated and improved for R 3.6 and beyond Harness the power of R to build flexible, effective, and transparent machine learning models Learn quickly with a clear, hands-on guide by experienced machine learning teacher and practitioner, Brett Lantz Book Description Machine learning, at its core, is concerned with transforming data into actionable knowledge. R offers a powerful set of machine learning methods to quickly and easily gain insight from your data. *Machine Learning with R, Third Edition* provides a hands-on, readable guide to applying machine learning to real-world problems. Whether you are an experienced R user or new to the language, Brett Lantz teaches you everything you need to uncover key insights, make new predictions, and visualize your findings. This new 3rd edition updates the classic R data science book to R 3.6 with newer and better libraries, advice on ethical and bias issues in machine learning, and an introduction to deep learning. Find powerful new insights in your data; discover machine learning with R. What you will learn Discover the origins of machine learning and how exactly a computer learns by example Prepare your data for machine learning work with the R programming language Classify important outcomes using nearest neighbor and Bayesian methods Predict future events using decision trees, rules, and support vector machines Forecast numeric data and estimate financial values using regression methods Model complex processes with artificial neural networks — the basis of deep learning Avoid bias in machine learning models Evaluate your models and improve their performance Connect R to SQL databases and emerging big data technologies such as Spark, H2O, and TensorFlow Who this book is for Data scientists, students, and other practitioners who want a clear, accessible guide to machine learning with R.

**Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow** Aurélien Géron 2019-09-05 Through a series of recent breakthroughs, deep learning has boosted the entire field of machine learning. Now, even programmers who know close to nothing about this technology can use simple, efficient tools to implement programs capable of learning from data. This practical book shows

you how. By using concrete examples, minimal theory, and two production-ready Python frameworks—Scikit-Learn and TensorFlow—author Aurélien Géron helps you gain an intuitive understanding of the concepts and tools for building intelligent systems. You'll learn a range of techniques, starting with simple linear regression and progressing to deep neural networks. With exercises in each chapter to help you apply what you've learned, all you need is programming experience to get started. Explore the machine learning landscape, particularly neural nets Use Scikit-Learn to track an example machine-learning project end-to-end Explore several training models, including support vector machines, decision trees, random forests, and ensemble methods Use the TensorFlow library to build and train neural nets Dive into neural net architectures, including convolutional nets, recurrent nets, and deep reinforcement learning Learn techniques for training and scaling deep neural nets

**Microsoft Azure Essentials Azure Machine Learning** Jeff Barnes 2015-04-25 Microsoft Azure Essentials from Microsoft Press is a series of free ebooks designed to help you advance your technical skills with Microsoft Azure. This third ebook in the series introduces Microsoft Azure Machine Learning, a service that a developer can use to build predictive analytics models (using training datasets from a variety of data sources) and then easily deploy those models for consumption as cloud web services. The ebook presents an overview of modern data science theory and principles, the associated workflow, and then covers some of the more common machine learning algorithms in use today. It builds a variety of predictive analytics models using real world data, evaluates several different machine learning algorithms and modeling strategies, and then deploys the finished models as machine learning web services on Azure within a matter of minutes. The ebook also expands on a working Azure Machine Learning predictive model example to explore the types of client and server applications you can create to consume Azure Machine Learning web services. Watch Microsoft Press's blog and Twitter (@MicrosoftPress) to learn about other free ebooks in the Microsoft Azure Essentials series.

*Machine Learning* Kevin P. Murphy 2012-08-24 A comprehensive introduction to machine learning that uses probabilistic models and inference as a unifying approach. Today's Web-enabled deluge of electronic data calls for automated methods of data analysis. Machine learning provides these, developing methods that can automatically detect patterns in data and then use the uncovered patterns to predict future data. This textbook offers a comprehensive and self-contained introduction to the field of machine learning, based on a unified, probabilistic approach. The coverage combines breadth and depth, offering necessary background material on such topics as probability, optimization, and linear algebra as well as discussion of recent developments in the field, including conditional random fields, L1 regularization, and deep learning. The book is written in an informal, accessible style, complete with pseudo-code for the most important algorithms. All topics are copiously illustrated with color images and worked examples drawn from such application domains as biology, text processing, computer vision, and robotics. Rather than providing a cookbook of different heuristic methods, the book stresses a principled model-based approach, often using the language of graphical models to specify models in a concise and intuitive way. Almost all the models described have been implemented in a MATLAB software package—PMTK (probabilistic modeling toolkit)—that is freely available online. The book is suitable for upper-level undergraduates with an introductory-level college math background and beginning graduate students.

**Deep Learning with R** J.J. Allaire 2018-01-22 Summary Deep Learning with R introduces the world of deep learning using the powerful Keras library and its R language interface. The book builds your understanding of deep learning through intuitive explanations and practical examples. Continue your journey into the world of deep learning with Deep Learning with R in Motion, a practical, hands-on

video course available exclusively at Manning.com ([www.manning.com/livevideo/deep-learning-with-r-in-motion](http://www.manning.com/livevideo/deep-learning-with-r-in-motion)). 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. Deep-learning systems now enable previously impossible smart applications, revolutionizing image recognition and natural-language processing, and identifying complex patterns in data. The Keras deep-learning library provides data scientists and developers working in R a state-of-the-art toolset for tackling deep-learning tasks. About the Book Deep Learning with R introduces the world of deep learning using the powerful Keras library and its R language interface. Initially written for Python as Deep Learning with Python by Keras creator and Google AI researcher François Chollet and adapted for R by RStudio founder J. J. Allaire, this book builds your understanding of deep learning through intuitive explanations and practical examples. You'll practice your new skills with R-based applications in computer vision, natural-language processing, and generative models. What's Inside Deep learning from first principles Setting up your own deep-learning environment Image classification and generation Deep learning for text and sequences About the Reader You'll need intermediate R programming skills. No previous experience with machine learning or deep learning is assumed. About the Authors François Chollet is a deep-learning researcher at Google and the author of the Keras library. J.J. Allaire is the founder of RStudio and the author of the R interfaces to TensorFlow and Keras. 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

**Human-in-the-Loop Machine Learning** Robert (Munro) Monarch 2021-07-20 Human-in-the-Loop Machine Learning lays out methods for humans and machines to work together effectively. Summary Most machine learning systems that are deployed in the world today learn from human feedback. However, most machine learning courses focus almost exclusively on the algorithms, not the human-computer interaction part of the systems. This can leave a big knowledge gap for data scientists working in real-world machine learning, where data scientists spend more time on data management than on building algorithms. Human-in-the-Loop Machine Learning is a practical guide to optimizing the entire machine learning process, including techniques for annotation, active learning, transfer learning, and using machine learning to optimize every step of the process. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Machine learning applications perform better with human feedback. Keeping the right people in the loop improves the accuracy of models, reduces errors in data, lowers costs, and helps you ship models faster. About the book Human-in-the-Loop Machine Learning lays out methods for humans and machines to work together effectively. You'll find best practices on selecting sample data for human feedback, quality control for human annotations, and designing annotation interfaces. You'll learn to create training data for labeling, object detection, and semantic segmentation, sequence labeling, and more. The book starts with the basics and progresses to advanced techniques like transfer learning and self-supervision within annotation workflows. What's inside Identifying the right training and evaluation data Finding and managing people to annotate data Selecting annotation quality control strategies Designing interfaces to improve accuracy and efficiency About the author Robert (Munro) Monarch is a data scientist and engineer who has built machine learning data for companies such as Apple, Amazon, Google, and IBM. He holds a PhD from Stanford. Robert holds a PhD from Stanford focused on Human-in-the-Loop machine learning for healthcare and disaster response, and is a disaster response professional in addition to being a machine learning professional. A worked example throughout this text is classifying disaster-related messages from real disasters that Robert has helped respond to in the

past. Table of Contents PART 1 - FIRST STEPS 1 Introduction to human-in-the-loop machine learning 2 Getting started with human-in-the-loop machine learning PART 2 - ACTIVE LEARNING 3 Uncertainty sampling 4 Diversity sampling 5 Advanced active learning 6 Applying active learning to different machine learning tasks PART 3 - ANNOTATION 7 Working with the people annotating your data 8 Quality control for data annotation 9 Advanced data annotation and augmentation 10 Annotation quality for different machine learning tasks PART 4 - HUMAN-COMPUTER INTERACTION FOR MACHINE LEARNING 11 Interfaces for data annotation 12 Human-in-the-loop machine learning products

*Mastering Machine Learning Algorithms* Giuseppe Bonaccorso 2020-01-31 Updated and revised second edition of the bestselling guide to exploring and mastering the most important algorithms for solving complex machine learning problems Key Features Updated to include new algorithms and techniques Code updated to Python 3.8 & TensorFlow 2.x New coverage of regression analysis, time series analysis, deep learning models, and cutting-edge applications Book Description *Mastering Machine Learning Algorithms, Second Edition* helps you harness the real power of machine learning algorithms in order to implement smarter ways of meeting today's overwhelming data needs. This newly updated and revised guide will help you master algorithms used widely in semi-supervised learning, reinforcement learning, supervised learning, and unsupervised learning domains. You will use all the modern libraries from the Python ecosystem - including NumPy and Keras - to extract features from varied complexities of data. Ranging from Bayesian models to the Markov chain Monte Carlo algorithm to Hidden Markov models, this machine learning book teaches you how to extract features from your dataset, perform complex dimensionality reduction, and train supervised and semi-supervised models by making use of Python-based libraries such as scikit-learn. You will also discover practical applications for complex techniques such as maximum likelihood estimation, Hebbian learning, and ensemble learning, and how to use TensorFlow 2.x to train effective deep neural networks. By the end of this book, you will be ready to implement and solve end-to-end machine learning problems and use case scenarios. What you will learn Understand the characteristics of a machine learning algorithm Implement algorithms from supervised, semi-supervised, unsupervised, and RL domains Learn how regression works in time-series analysis and risk prediction Create, model, and train complex probabilistic models Cluster high-dimensional data and evaluate model accuracy Discover how artificial neural networks work - train, optimize, and validate them Work with autoencoders, Hebbian networks, and GANs Who this book is for This book is for data science professionals who want to delve into complex ML algorithms to understand how various machine learning models can be built. Knowledge of Python programming is required.

**Advanced Deep Learning with R** Bharatendra Rai 2019-12-17 Discover best practices for choosing, building, training, and improving deep learning models using Keras-R, and TensorFlow-R libraries Key Features Implement deep learning algorithms to build AI models with the help of tips and tricks Understand how deep learning models operate using expert techniques Apply reinforcement learning, computer vision, GANs, and NLP using a range of datasets Book Description Deep learning is a branch of machine learning based on a set of algorithms that attempt to model high-level abstractions in data. *Advanced Deep Learning with R* will help you understand popular deep learning architectures and their variants in R, along with providing real-life examples for them. This deep learning book starts by covering the essential deep learning techniques and concepts for prediction and classification. You will learn about neural networks, deep learning architectures, and the fundamentals for implementing deep learning with R. The book will also take you through using important deep learning libraries such as Keras-R and TensorFlow-R to implement deep learning algorithms within applications. You will get up to speed with artificial neural networks, recurrent neural networks, convolutional neural networks, long short-term memory networks, and more using advanced examples. Later, you'll discover how to apply

generative adversarial networks (GANs) to generate new images; autoencoder neural networks for image dimension reduction, image de-noising and image correction and transfer learning to prepare, define, train, and model a deep neural network. By the end of this book, you will be ready to implement your knowledge and newly acquired skills for applying deep learning algorithms in R through real-world examples. What you will learn

- Learn how to create binary and multi-class deep neural network models
- Implement GANs for generating new images
- Create autoencoder neural networks for image dimension reduction, image de-noising and image correction
- Implement deep neural networks for performing efficient text classification
- Learn to define a recurrent convolutional network model for classification in Keras
- Explore best practices and tips for performance optimization of various deep learning models

Who this book is for This book is for data scientists, machine learning practitioners, deep learning researchers and AI enthusiasts who want to develop their skills and knowledge to implement deep learning techniques and algorithms using the power of R. A solid understanding of machine learning and working knowledge of the R programming language are required.

**Deep Learning for Coders with fastai and PyTorch** Jeremy Howard 2020-06-29 Deep learning is often viewed as the exclusive domain of math PhDs and big tech companies. But as this hands-on guide demonstrates, programmers comfortable with Python can achieve impressive results in deep learning with little math background, small amounts of data, and minimal code. How? With fastai, the first library to provide a consistent interface to the most frequently used deep learning applications. Authors Jeremy Howard and Sylvain Gugger, the creators of fastai, show you how to train a model on a wide range of tasks using fastai and PyTorch. You'll also dive progressively further into deep learning theory to gain a complete understanding of the algorithms behind the scenes. Train models in computer vision, natural language processing, tabular data, and collaborative filtering

- Learn the latest deep learning techniques that matter most in practice
- Improve accuracy, speed, and reliability by understanding how deep learning models work
- Discover how to turn your models into web applications
- Implement deep learning algorithms from scratch
- Consider the ethical implications of your work
- Gain insight from the foreword by PyTorch cofounder, Soumith Chintala

Deep Learning Patterns and Practices Andrew Ferlitsch 2021-10-12 Discover best practices, reproducible architectures, and design patterns to help guide deep learning models from the lab into production. In Deep Learning Patterns and Practices you will learn:

- Internal functioning of modern convolutional neural networks
- Procedural reuse design pattern for CNN architectures
- Models for mobile and IoT devices
- Assembling large-scale model deployments
- Optimizing hyperparameter tuning
- Migrating a model to a production environment

The big challenge of deep learning lies in taking cutting-edge technologies from R&D labs through to production. Deep Learning Patterns and Practices is here to help. This unique guide lays out the latest deep learning insights from author Andrew Ferlitsch's work with Google Cloud AI. In it, you'll find deep learning models presented in a unique new way: as extendable design patterns you can easily plug-and-play into your software projects. Each valuable technique is presented in a way that's easy to understand and filled with accessible diagrams and code samples. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Discover best practices, design patterns, and reproducible architectures that will guide your deep learning projects from the lab into production. This awesome book collects and illuminates the most relevant insights from a decade of real world deep learning experience. You'll build your skills and confidence with each interesting example. About the book Deep Learning Patterns and Practices is a deep dive into building successful deep learning applications. You'll save hours of trial-and-error by applying proven patterns and practices to your own projects. Tested code samples, real-world examples, and a brilliant narrative style make even complex concepts simple and engaging. Along the way, you'll get tips for deploying, testing, and maintaining

your projects. What's inside Modern convolutional neural networks Design pattern for CNN architectures Models for mobile and IoT devices Large-scale model deployments Examples for computer vision About the reader For machine learning engineers familiar with Python and deep learning. About the author Andrew Ferlitsch is an expert on computer vision, deep learning, and operationalizing ML in production at Google Cloud AI Developer Relations. Table of Contents PART 1 DEEP LEARNING FUNDAMENTALS 1 Designing modern machine learning 2 Deep neural networks 3 Convolutional and residual neural networks 4 Training fundamentals PART 2 BASIC DESIGN PATTERN 5 Procedural design pattern 6 Wide convolutional neural networks 7 Alternative connectivity patterns 8 Mobile convolutional neural networks 9 Autoencoders PART 3 WORKING WITH PIPELINES 10 Hyperparameter tuning 11 Transfer learning 12 Data distributions 13 Data pipeline 14 Training and deployment pipeline

*Machine Learning for Hackers* Drew Conway 2012-02-13 If you're an experienced programmer interested in crunching data, this book will get you started with machine learning—a toolkit of algorithms that enables computers to train themselves to automate useful tasks. Authors Drew Conway and John Myles White help you understand machine learning and statistics tools through a series of hands-on case studies, instead of a traditional math-heavy presentation. Each chapter focuses on a specific problem in machine learning, such as classification, prediction, optimization, and recommendation. Using the R programming language, you'll learn how to analyze sample datasets and write simple machine learning algorithms. *Machine Learning for Hackers* is ideal for programmers from any background, including business, government, and academic research. Develop a naïve Bayesian classifier to determine if an email is spam, based only on its text Use linear regression to predict the number of page views for the top 1,000 websites Learn optimization techniques by attempting to break a simple letter cipher Compare and contrast U.S. Senators statistically, based on their voting records Build a “whom to follow” recommendation system from Twitter data

**Machine Learning for Algorithmic Trading - Second Edition** Stefan Jansen 2020-07-31

**Mathematics for Machine Learning** Marc Peter Deisenroth 2020-04-23 The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

*Dive Into Deep Learning* Joanne Quinn 2019-07-15 The leading experts in system change and learning, with their school-based partners around the world, have created this essential companion to their runaway best-seller, *Deep Learning: Engage the World Change the World*. This hands-on guide provides a roadmap for building capacity in teachers, schools, districts, and systems to design deep learning, measure progress, and assess conditions needed to activate and sustain innovation. *Dive Into Deep Learning: Tools for Engagement* is rich with resources educators need to construct and drive

meaningful deep learning experiences in order to develop the kind of mindset and know-how that is crucial to becoming a problem-solving change agent in our global society. Designed in full color, this easy-to-use guide is loaded with tools, tips, protocols, and real-world examples. It includes:

- A framework for deep learning that provides a pathway to develop the six global competencies needed to flourish in a complex world — character, citizenship, collaboration, communication, creativity, and critical thinking.
- Learning progressions to help educators analyze student work and measure progress.
- Learning design rubrics, templates and examples for incorporating the four elements of learning design: learning partnerships, pedagogical practices, learning environments, and leveraging digital.
- Conditions rubrics, teacher self-assessment tools, and planning guides to help educators build, mobilize, and sustain deep learning in schools and districts.

Learn about, improve, and expand your world of learning. Put the joy back into learning for students and adults alike. Dive into deep learning to create learning experiences that give purpose, unleash student potential, and transform not only learning, but life itself.

**Machine Learning with R** Brett Lantz 2013-10-25 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.

*Machine Learning* Stephen Marsland 2011-03-23 Traditional books on machine learning can be divided into two groups- those aimed at advanced undergraduates or early postgraduates with reasonable mathematical knowledge and those that are primers on how to code algorithms. The field is ready for a text that not only demonstrates how to use the algorithms that make up machine learning methods, but

**Deep Learning with R, Second Edition** Francois Chollet 2022-09-13 Deep learning from the ground up using R and the powerful Keras library! In *Deep Learning with R, Second Edition* you will learn: Deep learning from first principles Image classification and image segmentation Time series forecasting Text classification and machine translation Text generation, neural style transfer, and image generation *Deep Learning with R, Second Edition* shows you how to put deep learning into action. It's based on the revised new edition of François Chollet's bestselling *Deep Learning with Python*. All code and examples have been expertly translated to the R language by Tomasz Kalinowski, who maintains the Keras and Tensorflow R packages at RStudio. Novices and experienced ML practitioners will love the expert insights, practical techniques, and important theory for building neural networks. About the technology Deep learning has become essential knowledge for data scientists, researchers, and software developers. The R language APIs for Keras and TensorFlow put deep learning within reach for all R users, even if they have no experience with advanced machine learning or neural networks. This book shows you how to get started on core DL tasks like computer vision, natural language processing, and more using R. About the book *Deep Learning with R, Second Edition* is a hands-on guide to deep learning using the R language. As you move through this book, you'll quickly lock in the foundational ideas of deep learning. The intuitive explanations, crisp illustrations, and clear examples guide you through core DL skills like image processing and text manipulation, and even advanced features like transformers. This revised and expanded new edition is adapted from *Deep Learning with Python, Second Edition* by François Chollet, the creator of the Keras library. What's inside Image classification

and image segmentation Time series forecasting Text classification and machine translation Text generation, neural style transfer, and image generation About the reader For readers with intermediate R skills. No previous experience with Keras, TensorFlow, or deep learning is required. About the author François Chollet is a software engineer at Google and creator of Keras. Tomasz Kalinowski is a software engineer at RStudio and maintainer of the Keras and Tensorflow R packages. J.J. Allaire is the founder of RStudio, and the author of the first edition of this book. Table of Contents 1 What is deep learning? 2 The mathematical building blocks of neural networks 3 Introduction to Keras and TensorFlow 4 Getting started with neural networks: Classification and regression 5 Fundamentals of machine learning 6 The universal workflow of machine learning 7 Working with Keras: A deep dive 8 Introduction to deep learning for computer vision 9 Advanced deep learning for computer vision 10 Deep learning for time series 11 Deep learning for text 12 Generative deep learning 13 Best practices for the real world 14 Conclusions

*R Packages* Hadley Wickham 2015-03-26 Turn your R code into packages that others can easily download and use. This practical book shows you how to bundle reusable R functions, sample data, and documentation together by applying author Hadley Wickham's package development philosophy. In the process, you'll work with devtools, roxygen, and testthat, a set of R packages that automate common development tasks. Devtools encapsulates best practices that Hadley has learned from years of working with this programming language. Ideal for developers, data scientists, and programmers with various backgrounds, this book starts you with the basics and shows you how to improve your package writing over time. You'll learn to focus on what you want your package to do, rather than think about package structure. Learn about the most useful components of an R package, including vignettes and unit tests Automate anything you can, taking advantage of the years of development experience embodied in devtools Get tips on good style, such as organizing functions into files Streamline your development process with devtools Learn the best way to submit your package to the Comprehensive R Archive Network (CRAN) Learn from a well-respected member of the R community who created 30 R packages, including ggplot2, dplyr, and tidyr

**Python Machine Learning** Sebastian Raschka 2015-09-23 Unlock deeper insights into Machine Learning with this vital guide to cutting-edge predictive analytics About This Book Leverage Python's most powerful open-source libraries for deep learning, data wrangling, and data visualization Learn effective strategies and best practices to improve and optimize machine learning systems and algorithms Ask - and answer - tough questions of your data with robust statistical models, built for a range of datasets Who This Book Is For If you want to find out how to use Python to start answering critical questions of your data, pick up Python Machine Learning - whether you want to get started from scratch or want to extend your data science knowledge, this is an essential and unmissable resource. What You Will Learn Explore how to use different machine learning models to ask different questions of your data Learn how to build neural networks using Keras and Theano Find out how to write clean and elegant Python code that will optimize the strength of your algorithms Discover how to embed your machine learning model in a web application for increased accessibility Predict continuous target outcomes using regression analysis Uncover hidden patterns and structures in data with clustering Organize data using effective pre-processing techniques Get to grips with sentiment analysis to delve deeper into textual and social media data In Detail Machine learning and predictive analytics are transforming the way businesses and other organizations operate. Being able to understand trends and patterns in complex data is critical to success, becoming one of the key strategies for unlocking growth in a challenging contemporary marketplace. Python can help you deliver key insights into your data - its unique capabilities as a language let you build sophisticated algorithms and statistical models that can reveal new perspectives and answer key questions that are vital for success. Python Machine Learning

gives you access to the world of predictive analytics and demonstrates why Python is one of the world's leading data science languages. If you want to ask better questions of data, or need to improve and extend the capabilities of your machine learning systems, this practical data science book is invaluable. Covering a wide range of powerful Python libraries, including scikit-learn, Theano, and Keras, and featuring guidance and tips on everything from sentiment analysis to neural networks, you'll soon be able to answer some of the most important questions facing you and your organization. Style and approach Python Machine Learning connects the fundamental theoretical principles behind machine learning to their practical application in a way that focuses you on asking and answering the right questions. It walks you through the key elements of Python and its powerful machine learning libraries, while demonstrating how to get to grips with a range of statistical models.

**Practical Machine Learning with Python** Dipanjan Sarkar 2017-12-20 Master the essential skills needed to recognize and solve complex problems with machine learning and deep learning. Using real-world examples that leverage the popular Python machine learning ecosystem, this book is your perfect companion for learning the art and science of machine learning to become a successful practitioner. The concepts, techniques, tools, frameworks, and methodologies used in this book will teach you how to think, design, build, and execute machine learning systems and projects successfully. Practical Machine Learning with Python follows a structured and comprehensive three-tiered approach packed with hands-on examples and code. Part 1 focuses on understanding machine learning concepts and tools. This includes machine learning basics with a broad overview of algorithms, techniques, concepts and applications, followed by a tour of the entire Python machine learning ecosystem. Brief guides for useful machine learning tools, libraries and frameworks are also covered. Part 2 details standard machine learning pipelines, with an emphasis on data processing analysis, feature engineering, and modeling. You will learn how to process, wrangle, summarize and visualize data in its various forms. Feature engineering and selection methodologies will be covered in detail with real-world datasets followed by model building, tuning, interpretation and deployment. Part 3 explores multiple real-world case studies spanning diverse domains and industries like retail, transportation, movies, music, marketing, computer vision and finance. For each case study, you will learn the application of various machine learning techniques and methods. The hands-on examples will help you become familiar with state-of-the-art machine learning tools and techniques and understand what algorithms are best suited for any problem. Practical Machine Learning with Python will empower you to start solving your own problems with machine learning today! What You'll Learn Execute end-to-end machine learning projects and systems Implement hands-on examples with industry standard, open source, robust machine learning tools and frameworks Review case studies depicting applications of machine learning and deep learning on diverse domains and industries Apply a wide range of machine learning models including regression, classification, and clustering. Understand and apply the latest models and methodologies from deep learning including CNNs, RNNs, LSTMs and transfer learning. Who This Book Is For IT professionals, analysts, developers, data scientists, engineers, graduate students

*Understanding Machine Learning* Shai Shalev-Shwartz 2014-05-19 Introduces machine learning and its algorithmic paradigms, explaining the principles behind automated learning approaches and the considerations underlying their usage.

**Foundations of Machine Learning, second edition** Mehryar Mohri 2018-12-25 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.

Fundamentals of Machine Learning for Predictive Data Analytics, second edition John D. Kelleher 2020-10-20 The second edition of a comprehensive introduction to machine learning approaches used in predictive data analytics, covering both theory and practice. Machine learning is often used to build predictive models by extracting patterns from large datasets. These models are used in predictive data analytics applications including price prediction, risk assessment, predicting customer behavior, and document classification. This introductory textbook offers a detailed and focused treatment of the most important machine learning approaches used in predictive data analytics, covering both theoretical concepts and practical applications. Technical and mathematical material is augmented with explanatory worked examples, and case studies illustrate the application of these models in the broader business context. This second edition covers recent developments in machine learning, especially in a new chapter on deep learning, and two new chapters that go beyond predictive analytics to cover unsupervised learning and reinforcement learning.

**Hands-On Machine Learning with R** Brad Boehmke 2019-11-07 Hands-on Machine Learning with R provides a practical and applied approach to learning and developing intuition into today's most popular machine learning methods. This book serves as a practitioner's guide to the machine learning process and is meant to help the reader learn to apply the machine learning stack within R, which includes using various R packages such as glmnet, h2o, ranger, xgboost, keras, and others to effectively model and gain insight from their data. The book favors a hands-on approach, providing an intuitive understanding of machine learning concepts through concrete examples and just a little bit of theory. Throughout this book, the reader will be exposed to the entire machine learning process including feature engineering, resampling, hyperparameter tuning, model evaluation, and interpretation. The reader will be exposed to powerful algorithms such as regularized regression, random forests, gradient boosting machines, deep learning, generalized low rank models, and more! By favoring a hands-on approach and using real world data, the reader will gain an intuitive understanding of the architectures and engines that drive these algorithms and packages, understand when and how to tune the various hyperparameters, and be able to interpret model results. By the end of this book, the reader should have a firm grasp of R's machine learning stack and be able to implement a systematic approach for producing high quality modeling results. Features: · Offers a practical and applied introduction to the most popular machine learning methods. · Topics covered include feature engineering, resampling, deep learning and more. · Uses a hands-on approach and real world data.

Machine Learning with R Brett Lantz 2015-07-31 Updated and upgraded to the latest libraries and most modern thinking, Machine Learning with R, Second Edition provides you with a rigorous introduction to

this essential skill of professional data science. Without shying away from technical theory, it is written to provide focused and practical knowledge to get you building algorithms and crunching your data, with minimal previous experience. With this book, you'll discover all the analytical tools you need to gain insights from complex data and learn how to choose the correct algorithm for your specific needs. Through full engagement with the sort of real-world problems data-wranglers face, you'll learn to apply machine learning methods to deal with common tasks, including classification, prediction, forecasting, market analysis, and clustering.

*Deep Learning for Computer Vision* Rajalingappaa Shanmugamani 2018-01-23 Learn how to model and train advanced neural networks to implement a variety of Computer Vision tasks Key Features Train different kinds of deep learning model from scratch to solve specific problems in Computer Vision Combine the power of Python, Keras, and TensorFlow to build deep learning models for object detection, image classification, similarity learning, image captioning, and more Includes tips on optimizing and improving the performance of your models under various constraints Book Description Deep learning has shown its power in several application areas of Artificial Intelligence, especially in Computer Vision. Computer Vision is the science of understanding and manipulating images, and finds enormous applications in the areas of robotics, automation, and so on. This book will also show you, with practical examples, how to develop Computer Vision applications by leveraging the power of deep learning. In this book, you will learn different techniques related to object classification, object detection, image segmentation, captioning, image generation, face analysis, and more. You will also explore their applications using popular Python libraries such as TensorFlow and Keras. This book will help you master state-of-the-art, deep learning algorithms and their implementation. What you will learn Set up an environment for deep learning with Python, TensorFlow, and Keras Define and train a model for image and video classification Use features from a pre-trained Convolutional Neural Network model for image retrieval Understand and implement object detection using the real-world Pedestrian Detection scenario Learn about various problems in image captioning and how to overcome them by training images and text together Implement similarity matching and train a model for face recognition Understand the concept of generative models and use them for image generation Deploy your deep learning models and optimize them for high performance Who this book is for This book is targeted at data scientists and Computer Vision practitioners who wish to apply the concepts of Deep Learning to overcome any problem related to Computer Vision. A basic knowledge of programming in Python—and some understanding of machine learning concepts—is required to get the best out of this book.

**Deep Learning with R, Second Edition** Francois Chollet 2022-07-26 Deep learning from the ground up using R and the powerful Keras library! In *Deep Learning with R, Second Edition* you will learn: Deep learning from first principles Image classification and image segmentation Time series forecasting Text classification and machine translation Text generation, neural style transfer, and image generation *Deep Learning with R, Second Edition* shows you how to put deep learning into action. It's based on the revised new edition of François Chollet's bestselling *Deep Learning with Python*. All code and examples have been expertly translated to the R language by Tomasz Kalinowski, who maintains the Keras and Tensorflow R packages at RStudio. Novices and experienced ML practitioners will love the expert insights, practical techniques, and important theory for building 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 has become essential knowledge for data scientists, researchers, and software developers. The R language APIs for Keras and TensorFlow put deep learning within reach for all R users, even if they have no experience with advanced machine learning or neural networks. This book shows you how to get started on core DL tasks like computer vision, natural language processing, and more using R. About the book *Deep Learning with R, Second Edition* is a hands-on guide to deep

learning using the R language. As you move through this book, you'll quickly lock in the foundational ideas of deep learning. The intuitive explanations, crisp illustrations, and clear examples guide you through core DL skills like image processing and text manipulation, and even advanced features like transformers. This revised and expanded new edition is adapted from *Deep Learning with Python, Second Edition* by François Chollet, the creator of the Keras library. What's inside  
Image classification and image segmentation  
Time series forecasting  
Text classification and machine translation  
Text generation, neural style transfer, and image generation  
About the reader  
For readers with intermediate R skills. No previous experience with Keras, TensorFlow, or deep learning is required.  
About the author  
François Chollet is a software engineer at Google and creator of Keras. Tomasz Kalinowski is a software engineer at RStudio and maintainer of the Keras and Tensorflow R packages. J.J. Allaire is the founder of RStudio, and the author of the first edition of this book.  
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