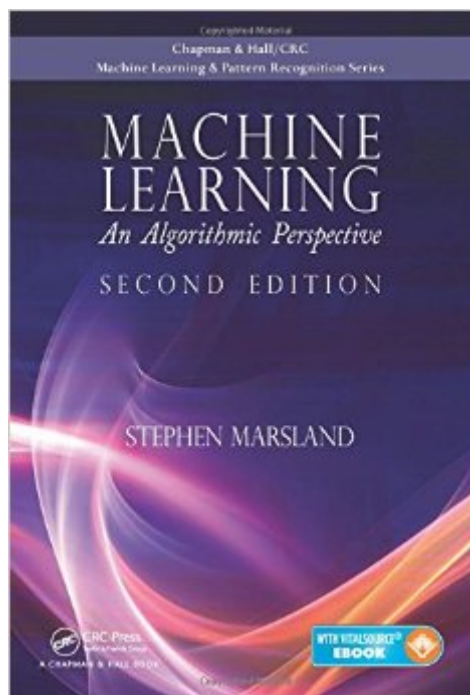


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# Machine Learning: An Algorithmic Perspective, Second Edition (Chapman & Hall/Crc Machine Learning & Pattern Recognition)



## Synopsis

A Proven, Hands-On Approach for Students without a Strong Statistical Foundation Since the best-selling first edition was published, there have been several prominent developments in the field of machine learning, including the increasing work on the statistical interpretations of machine learning algorithms. Unfortunately, computer science students without a strong statistical background often find it hard to get started in this area. Remediating this deficiency, *Machine Learning: An Algorithmic Perspective, Second Edition* helps students understand the algorithms of machine learning. It puts them on a path toward mastering the relevant mathematics and statistics as well as the necessary programming and experimentation. New to the Second Edition Two new chapters on deep belief networks and Gaussian processes Reorganization of the chapters to make a more natural flow of content Revision of the support vector machine material, including a simple implementation for experiments New material on random forests, the perceptron convergence theorem, accuracy methods, and conjugate gradient optimization for the multi-layer perceptron Additional discussions of the Kalman and particle filters Improved code, including better use of naming conventions in Python Suitable for both an introductory one-semester course and more advanced courses, the text strongly encourages students to practice with the code. Each chapter includes detailed examples along with further reading and problems. All of the code used to create the examples is available on the author's website.

## Book Information

Series: Chapman & Hall/Crc Machine Learning & Pattern Recognition

Hardcover: 457 pages

Publisher: Chapman and Hall/CRC; 2 edition (October 8, 2014)

Language: English

ISBN-10: 1466583282

ISBN-13: 978-1466583283

Product Dimensions: 1.2 x 7 x 10 inches

Shipping Weight: 2.2 pounds (View shipping rates and policies)

Average Customer Review: 3.9 out of 5 stars See all reviews (9 customer reviews)

Best Sellers Rank: #462,299 in Books (See Top 100 in Books) #110 in Books > Textbooks > Computer Science > Algorithms #282 in Books > Computers & Technology > Programming > Algorithms #289 in Books > Computers & Technology > Databases & Big Data > Data Mining

## Customer Reviews

I am updating my review of this book because apparently in my first review I didn't do a very good job. This made the review less than useful. I will try to do a better job this time. If it still isn't helpful let me know and I will try again. Like the title says, this book takes an algorithmic approach to teaching machine learning - as opposed to an applied or example based approach. The expectation is that you would get a tutorial on all the main algorithms rather than how to put various algorithms together to solve a particular problem in, say, fraud detection. The Contents reveal the algorithm basis: 1. Introduction (types of machine learning, why you would want to do it in the first place and a quick introduction to supervised learning) 2. Preliminaries (Key ideas about the problem of over fitting and the what I consider the most important topic: how to test and know when you have a program that has learned something other than the noise). Here the author also covers some ideas about the role of probability. Calling it "turning data into probabilities" is a bit odd, but that's really what we do. Early on he gets the key ideas of the ROC curve out of the way - something many texts just gloss over. I think the secret to understanding machine learning is understanding the idea behind the bias-variance trade-off (it is also handled very well in *The Elements of Statistical Learning: Data Mining, Inference, and Prediction, Second Edition* (Springer Series in Statistics) which I used to teach a class and read before I read this book). 3.

I am somewhat disappointed by this book. Today I'm feeling generous, but it was tough to bump this up from 2-stars because to me it at times created more confusion than anything else. First off, this is an introduction certainly, probably at the sophomore college level. The math is there but not used especially well, and I believe the intention of the book is to sort of cater to those whose math backgrounds aren't very good. There is certainly a need for a book like this, but it shouldn't be used for more than supplementary material. There are many errors in this book, sometimes typographical but other times a little more serious. The writing style puts a bit of stress on the reader and I find myself jumping around the paragraph sometimes trying to figure out what is being said. The tone is meant to be casual and simple, but coupled with the numerous errors in the book it really felt like this edition was rushed. This was the most disappointing aspect. This book was useful to me for clarifying some things, but only because it was a different explanation that wasn't bogged down in mathematical rigor. I think it is a very good idea to have several books on the same subject for which you are studying seriously (I have three or four books on quantum mechanics, and even then it took many reads through them to really understand it). This book served its purpose in that sense. I also bought it because I was eagerly awaiting deep learning topics to find their way into ML texts. Sadly, this book didn't help me as I had been reading papers at this point, but I think it was a good

introduction to deep learning and the types of neural networks typically used to build them and I applaud this initial effort by the author to include the material.

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