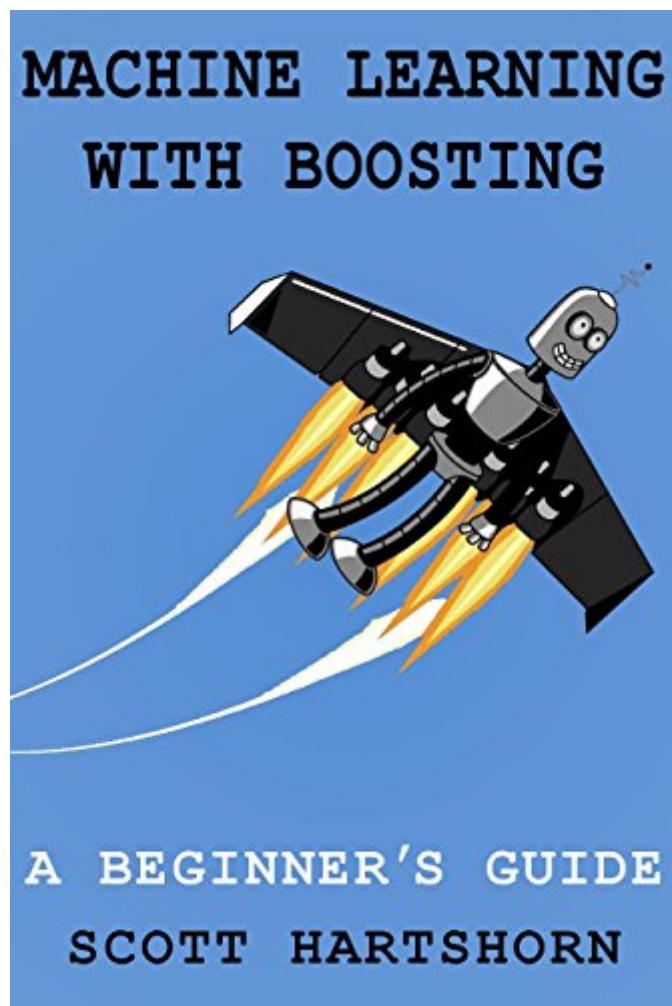


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# Machine Learning With Boosting: A Beginner's Guide



## Synopsis

Machine Learning - Made Easy To UnderstandIf you are looking for a book to help you understand how the machine learning algorithm Ã¢â€”Gradient Boosted TreesÃ¢â€”, also known as Ã¢â€”BoostingÃ¢â€”, works behind the scenes, then this is a good book for you. Boosting is a widely used algorithm in a variety of applications, including big data analysis for industry and data analysis competitions like you would find on Kaggle. Boosting has, in fact, become one of the dominant winning algorithms on Kaggle. This book explains how Decision Trees work and how they can be used sequentially to reduce many of the common problems with decision trees, such as overfitting the training data. That method is known as Gradient Boosted Trees. Several Dozen Visual ExamplesEquations are great for really understanding every last detail of an algorithm. But to get a basic idea of how something works, in a way that will stick with you 6 months later, nothing beats pictures. This book contains several dozen images which detail things such as how a decision tree picks what splits it will make and how they can be combined using boosted learning. This Is Not A Textbook, And May Not Be The Right Book For EveryoneA lot of machine learning books do one of two things, they either focus entirely on theory and will have statements like "And then the algorithm optimizes this loss function" or they focus entirely on the code itself and spend a lot of time on how to tune specific examples. The first approach is great for a computer scientist looking to improve the theory, do ground breaking work, or do something like rewriting XGBoost to be more efficient. The second approach is good for someone who just wants to get the code working, but doesn't want to look inside the black box. This book does neither of those things. There is in fact very little actual code in the book (Although the Python files that made all the examples are available as a free download), and there are no theory based examples at all. Instead, this book takes a different approach by providing simple examples of how Boosting works and then building on those examples one step at a time to capture the full process. This book uses examples to show how boosting works and why it works rather than formal proofs. Python & Excel Files For The Examples It turns out that Boosting lends itself well to being done iteratively in Excel. And the nice thing about Excel is that it is easy to follow the equations. And if your spreadsheet can duplicate your code, then you know that you understand the process. All of the Boosting examples in this book were generated using Python, but then duplicated in Excel, both of which are available for free download. If you are someone who learns by playing with the code and editing the data or equations to see what changes, then use those resources along with the book for a deeper understanding. Topics CoveredThe topics covered in this book areHow do decision trees workWhat are some of the failings of decision trees, and where do they differ from

how a human would solve the problemHow can multiple decision trees be stacked together into Gradient Boosted TreesHow to use the Boosting algorithm to make predictionsHow is the Boosting algorithm different for regression vs. classification with two categories vs. classification with multiple categoriesHow to use Cross Validation to check your modelHow to use Feature Engineering to improve the results from the machine learning algorithmAnd MoreIf you want to know more about how these machine learning algorithms work, but don't need to reinvent them, this is a good book for you

## **Book Information**

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## **Customer Reviews**

Excellent and useful book

As with Hartshorn's other educational texts, this book provides a crisp approach for learning the practical parts of applying gradient boosting to common machine learning problems. What I like best about the author's approach is the strategic introduction of each required sub-topic one at a time,

with concrete examples and thorough explanations. This deliberate approach makes it hard to get lost. Although this book stands on its own, and is approachable even without preexisting knowledge of ML techniques, I highly recommend *Machine Learning With Random Forests And Decision Trees: A Visual Guide For Beginners*, as it provides some background that will make reading this text much easier.

As is typical of the six of Scott's books I've ordered so far, the subject matter is crisply presented, and is helpful both for beginners and as crib notes for those already familiar with some of the concepts. Highly recommended reading, even if one simply wants to be educated about machine learning concepts without necessarily needing to implement such a solution.

Recently, Gradient Boosting and their subsequent differentiable loss functions have had an uptick in utilization: a nice alternative to some deep learning models. Any Engineer or Statistician interested in "boosting" their knowledge and intuition on the topic will find this book well received. Scott has clear examples with easy to understand explanations. Interestingly, the high noise of Gradient Boosting machines finds some analog in Generative Adversarial Networks.

as the other reviewers point out, Scott Hartshorn has a wonderful knack for taking difficult subjects and making them easily understood. Highly readable and easy to follow. Scott is a gifted writer and communicator.

Great book, like all the books Scott writes. He explains things clear and uses great examples.

A new publication that doesn't disappoint. Hartshorn has the ability to explain difficult concepts in easily understood language. Must read as either reviewing subject matter or along side required curriculum.

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