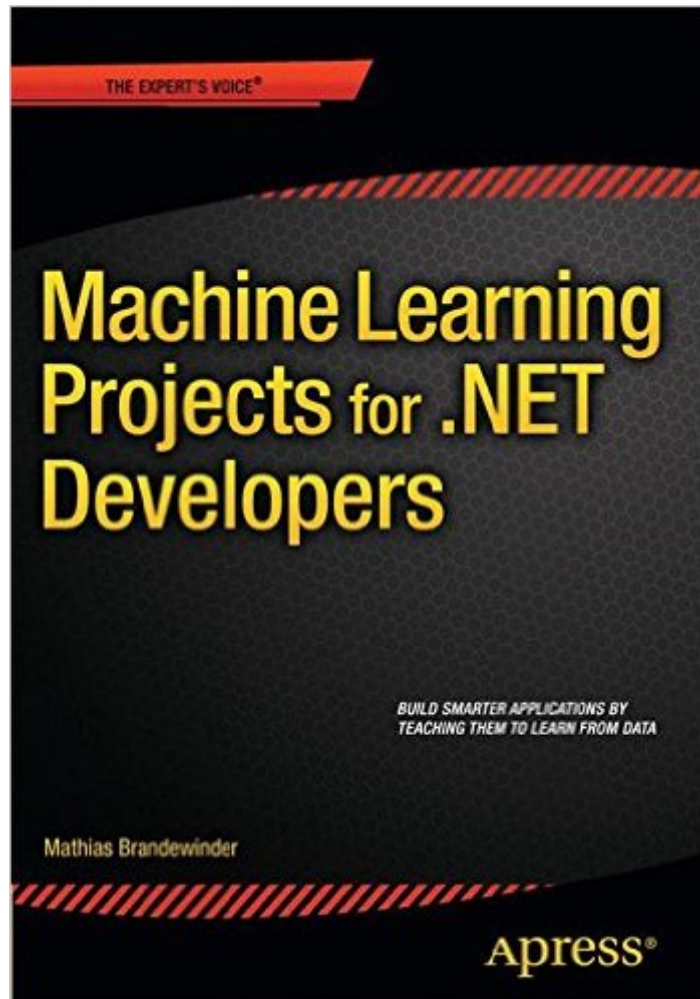


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# Machine Learning Projects For .NET Developers



## Synopsis

Machine Learning Projects for .NET Developers shows you how to build smarter .NET applications that learn from data, using simple algorithms and techniques that can be applied to a wide range of real-world problems. You'll code each project in the familiar setting of Visual Studio, while the machine learning logic uses F#, a language ideally suited to machine learning applications in .NET. If you're new to F#, this book will give you everything you need to get started. If you're already familiar with F#, this is your chance to put the language into action in an exciting new context. In a series of fascinating projects, you'll learn how to:

- Build an optical character recognition (OCR) system from scratch
- Code a spam filter that learns by example
- Use F#'s powerful type providers to interface with external resources (in this case, data analysis tools from the R programming language)
- Transform your data into informative features, and use them to make accurate predictions
- Find patterns in data when you don't know what you're looking for
- Predict numerical values using regression models
- Implement an intelligent game that learns how to play from experience

Along the way, you'll learn fundamental ideas that can be applied in all kinds of real-world contexts and industries, from advertising to finance, medicine, and scientific research. While some machine learning algorithms use fairly advanced mathematics, this book focuses on simple but effective approaches. If you enjoy hacking code and data, this book is for you.

## Book Information

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## Customer Reviews

Despite the three stars, I have to start off by saying that this book got me very excited, and has the

makings of a five star book. However, I think it has a couple of major issues that would need fixing before I could really recommend it. Depending on your background, these issues may not be a problem for you, in which case you would love it. Please read my review carefully before commenting or rating it, as my reasons for feeling it wasn't as good as it could be may not apply to you. That doesn't make my review unhelpful, it just means that it may not apply to you. Let me begin by pointing out that my day job consists of pulling data from a database, displaying it on a window, waiting for the user to do something with it and then saving it back to the database. Probably sounds boringly familiar to a lot of us. If so, you need to read this book to realise that some people have fun in their jobs! I read this book thinking, "Why aren't I doing exciting stuff like this?" So why only three stars, let me explain. The blurb for the book includes the following (incorrect) statement... "If you're new to F#, this book will give you everything you need to get started." This was one of the reasons I bought it. I have looked at F# before, but never really got to grips with it. This promised to teach it to me, whilst explaining Machine Learning (ML) at the same time. Sadly, the author failed fairly badly at this, which is a shame, as it wouldn't have taken much to include a bit more explanation that would have made the F# code much easier to understand. As I read the first chapter, I was really excited. It was well explained, and opened my eyes to a whole new world of code that I had never seen. He started off with some code in C#, which was great as it was familiar, then showed the same code in F#, and explained how it worked. At this point, I was ready to give the book a five star review, and rave about how wonderful it was. As I read the second chapter, I began to have my doubts, as he threw new F# syntax and constructs in, but didn't explain what most of it was, leaving me confused as to what the code was supposed to be doing. This got worse as the book went on, to the point where I started skim-reading the F#, totally defeating the purpose of the book. Sure I could copy and paste his code, but that wouldn't help me understand ML. I want to know what he's doing and why, so I can then write my own code to suit my own situation. Without sufficient explanation of the F#, this was extremely difficult. He also didn't really explain why F# was any better for this than C#. Other than the type providers, which is a brilliant F# feature, I wouldn't see any reason why I wouldn't do exactly the same in C#. I'm sure F# has many reasons for being more suitable, but this book didn't explain them. The annoying thing is that the book is pretty slim (less than 300 pages), and it wouldn't have been a problem to add more explanation of the F#. The book could still have been a modest size, but would have been soooooo much better. Given the high cost of the book for the number of pages, it's actually a bit cheeky that the explanations are so slim. Now obviously, if you already have a good background in F#, then the comments above won't apply to you, but the book is sold on the promise of teaching you F# as it goes along, and (in my

opinion) it fails to do that. The other major issue with the book is the maths. I was pleased to discover that ML uses some quite interesting maths, but very frustrated that he didn't explain most of this. Sure you can go off and search around for explanations of the concepts and what they mean, but I don't need to buy a book for that. Now before anyone jumps in and points out that this isn't a maths book, and it would take too much to explain it all, you're right, but SOME explanation would have made a huge difference. For example, it's pretty easy to look up the definition of eigenvectors and eigenvalues, and find out how to compute them, but I want to know WHY they are useful here, and what they mean. Again, using this sort of thing blindly, without any understanding of what it means is not going to make me an expert in ML. I want to be able to do this stuff on my own, not just copy his code and use it without understanding it. Again, this issue may not be a problem for you if you are well versed in Bayesian statistics, linear algebra, entropy and various other non-trivial subjects, but as the majority of us are probably not knowledgeable in these areas, we need more explanation to make this book as amazing as it obviously could be. I feel bad giving the book only three stars, especially as I can't put it down, but I feel it really needs major work before it can be recommended whole heartedly. I hope the author takes these comments in the spirit they were intended, and fleshes out the book for the second edition. If so, this would be a truly brilliant book. In summary, this book could be a classic. As it is, it's compelling reading, but left me without any confidence that I would apply much of what was presented on my own.

I want to start with this is a fantastic book and should be in every developer's library. I have made it through most of this book so far and even as a professional developer focused on big data, machine learning and cloud technologies have learned a fair amount from it. I think one of the most important aspects of this book is the progression from simple to sophisticated with a focus on the simplest solution that solves the problem. I sit on the board of a community college and am an adjunct professor as well as industry guest speaker at several Universities. I recommend this book primarily for an intermediate audience, however I will be using it in my introduction to programming classes as well, as I believe with some guidance, this book will spark far more programming discussion and thought than the simpler topics. The book is complete with functioning code and downloadable data sets; a perfect educational tool. I know the biggest issue with reviews is knowing if the reviewer knows what they are talking about, so I will post a link to the website I run and from there you can draw your own conclusions. <http://www.indiedevspot.com/>

I'd dabbled with F# for a while before getting this, but this is the book that really made F# click for

me. At least, F# in one of its guises--the explore-it-as-we-go scripted guise. The book is well structured and written in an accessible style. Prose and code are entwined to reveal how the developer is thinking as the analysis is built. I liked it so much that I bought a physical copy after reading most of my Kindle copy. If I had to make a criticism it'd be that the font in the physical book is tiny! That, and the use of the Titanic data-set in Chapter 6 feels, well, creepy. If you're completely new to F# it's probably not enough to get you going--despite the claim on the back cover. But read it alongside *The Book of F#: Breaking Free with Managed Functional Programming* or *Programming F# 3.0* and you'll be good to go. As for the machine learning content, I'm certainly no expert. However, it seems a good introductory text to me with chapters covering the major analytical techniques that you'll find in many machine learning books, and an explanation of which you'd use with a particular data set and why.

Disclaimer: I have not finished this book yet. I will update this review once I finish this book but so far I have found it to be easy to follow and enjoyable to read. This is one of the few books on a topic such as this that I think I may actually read from cover-to-cover. I have yet to find myself losing interest in the material presented or finding myself lost and re-reading sections. The flow is logical and makes understanding the topics less of a challenge. I hope the rest of the book is as pleasant as the portion I have read. My only negative comment so far would be the use of the term "ATM machine" on page 2 and that is only because it is a pet-peeve of mine.

I'm only a chapter in, but already I've had to pencil in 3 fixes to the F# code that could seriously trip people up. I suggest readers download the accompanying source code from the [apress.com](http://apress.com) site, or from the GitHub repo:[...]

This is a great book for .NET developers who are interested in a gentle introduction to machine learning. The text is clear, the examples are interesting, and the code is flat out fun to write.

Brandwinder is superb, covers a lot of areas and in a very understandable way. Would I recommend this book? If you are into machine learning then yes and even more so because of the F#!

Awesome read! The book explains ML concepts in a very easy and compelling manner, with great and well explained code samples. I recommend it!

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