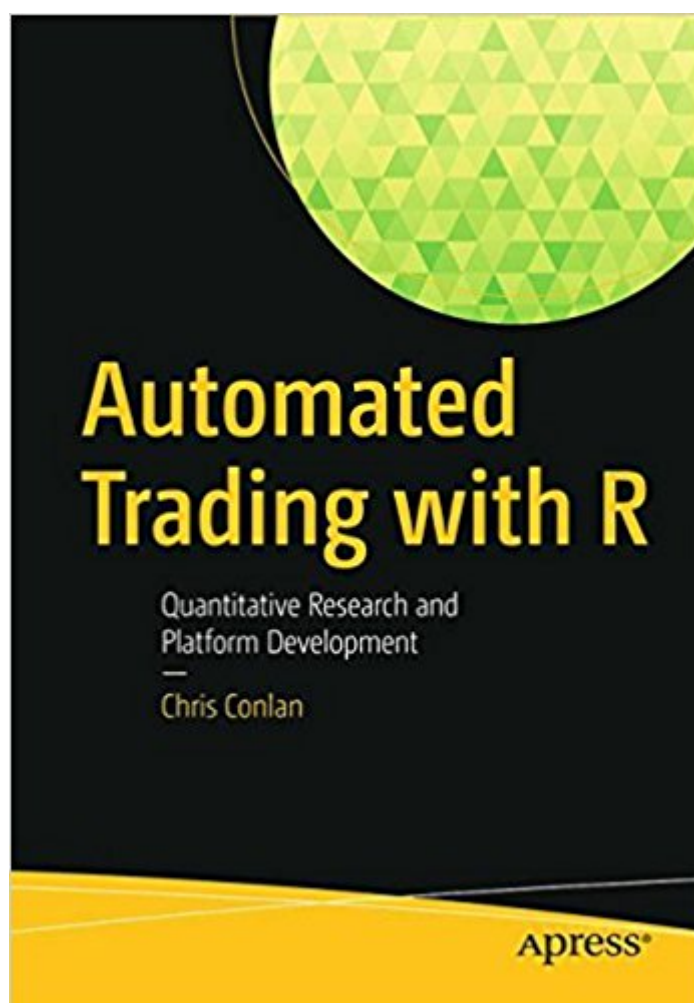


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# Automated Trading With R: Quantitative Research And Platform Development



## Synopsis

Learn to trade algorithmically with your existing brokerage, from data management, to strategy optimization, to order execution, using free and publicly available data. Connect to your brokerage's API, and the source code is plug-and-play. Automated Trading with R explains automated trading, starting with its mathematics and moving to its computation and execution. You will gain a unique insight into the mechanics and computational considerations taken in building a back-tester, strategy optimizer, and fully functional trading platform. The platform built in this book can serve as a complete replacement for commercially available platforms used by retail traders and small funds. Software components are strictly decoupled and easily scalable, providing opportunity to substitute any data source, trading algorithm, or brokerage. This book will: Provide a flexible alternative to common strategy automation frameworks, like Tradestation, Metatrader, and CQG, to small funds and retail traders Offer an understanding of the internal mechanisms of an automated trading system Standardize discussion and notation of real-world strategy optimization problems

**What You Will Learn**

- Understand machine-learning criteria for statistical validity in the context of time-series
- Optimize strategies, generate real-time trading decisions, and minimize computation time while programming an automated strategy in R and using its package library
- Best simulate strategy performance in its specific use case to derive accurate performance estimates
- Understand critical real-world variables pertaining to portfolio management and performance assessment, including latency, drawdowns, varying trade size, portfolio growth, and penalization of unused capital

**Who This Book Is For**

Traders/practitioners at the retail or small fund level with at least an undergraduate background in finance or computer science; graduate level finance or data science students

## Book Information

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## Customer Reviews

All the tools you need are provided in this book to trade algorithmically with your existing brokerage, from data management, to strategy optimization, to order execution, using free and publicly available data. Connect to your brokerage's API, and the source code is plug-and-play. Automated Trading with R explains the broad topic of automated trading, starting with its mathematics and moving to its computation and execution. Readers will gain a unique insight into the mechanics and computational considerations taken in building a back-tester, strategy optimizer, and fully functional trading platform. The platform built in this book can serve as a complete replacement for commercially available platforms used by retail traders and small funds. Software components are strictly decoupled and easily scalable, providing opportunity to substitute any data source, trading algorithm, or brokerage. This book will:

- Provide a flexible alternative to common strategy automation frameworks, like Tradestation, Metatrader, and CQG, to small funds and retail traders
- Offer an understanding of the internal mechanisms of an automated trading system
- Standardize discussion and notation of real-world strategy optimization problems

**What You'll Learn:**

- To optimize strategies, generate real-time trading decisions, and minimize computation time while programming an automated strategy in R and using its package library
- How to best simulate strategy performance in its specific use case to derive accurate performance estimates
- Important optimization criteria for statistical validity in the context of a time series
- An understanding of critical real-world variables pertaining to portfolio management and performance assessment, including latency, drawdowns, varying trade size, portfolio growth, and penalization of unused capital

Chris Conlan began his career as an independent data scientist specializing in trading algorithms. He attended the University of Virginia where he completed his undergraduate statistics coursework in three semesters. During his time at UVA, he secured initial fundraising for a privately held high-frequency forex group as president and chief trading strategist. He is currently managing the development of private technology companies in high-frequency forex, machine vision, and dynamic reporting.

Automated Trading with R jumps quickly into building simulations in R. The book assumes you are proficient in R, and have an understanding of trading already. The first chapter introduces a lot of mathematical formulas for calculations we may need such as an equity curve, Sharpe ratio, or max drawdown ratio. There was a table of formulas for these metrics. I would have preferred a bit more on the logical explanation side than math formulas although the code listings show how to calculate these metrics. One of the next topics covered is how to get the data for trading. R code is provided for fetching data from the Yahoo finance API, the YQL Web Service, and a library called zoo. There was also some discussion and code for cleaning data, and next are some indicators. Chapter six felt a bit out of place to me. It was a discussion about high performance computing, but much of the chapter was discussing hardware design unrelated to finance. There was a section about compiled versus interpreted languages. Some examples of how different for loops perform in R was shown. There are some decent sections on backtesting and optimizing. These were the most complicated chapters of the book, and I thought these sections could have definitely used some more fleshing out, as complex concepts often got a small paragraph. Finally there is a section about executing the trades with the platform. I cannot say I would be confident enough to use a platform like this for actual trading myself. However, if you are building a trading platform with R this book is an excellent selection. It is quite short but provides a lot of information, and the code samples I tried worked. I think the book could have been longer to help explain some of the ideas.

Automated Trading with R is a thoughtful, clearly laid out, and complete description of how to build trading systems that actually work. So often books of this nature leave out crucial pieces of system construction either out of incompetence or "as an exercise for the reader," but that is not the case here. The scope is broad enough and each subject addressed with enough specificity that anybody from a relative novice to a seasoned pro can gain something from reading this book. Conlan takes us through:- Networking: how to get data and make trades via the internet- Data Preparation: what to do with data once you have it- Indicators: how to construct the signals that inform trading decisions- Rule Sets: combining indicators at the portfolio level to decide when & how to trade- High-Performance Computing: where to look for performance gains in one's code- Simulation and Backtesting: putting everything together to predict historical performance- Optimization: finding strategies that work In addition to covering the fundamental theory and technical hurdles involved in each topic, the author focuses on providing functional example code which by the end amounts to a fully functional trading system. I look forward to implementing the lessons learned in my own trading system, including much of the example code provided. Disclosure: I was provided with a copy of the

book in exchange for my honest review.

If you're looking for a readable book for learning trading in R, that is also incredibly in-depth, then this is a great buy. The author has a way about explaining the development of the code as well as the making of the platform which makes it incredibly easy to grasp. This book gave great insights into the theory behind automated trading, and I highly recommend it for anyone interested in getting into this field. 10/10

The author does a great job of walking the reader through all aspects of automated trading. The examples, code, and technical details are all highly relevant, up to date, and useful for designing a trading system. This book is a must for anyone building out an automated trading platform, or even just someone learning the theory and code behind trading. I learned a lot, thank you.

good insights, but you end up with debugging for most of the time. Tooooooooooooo many errors

There are many bright minded traders/investors who are limited by their technical abilities. This book does a great job of helping you get over those technical hurdles so you can start bringing your ideas to life. In the book, the author teaches you how to implement a variety of popular trading strategies in R. However, the book is not about copy-pasting code. It teaches you the framework for building your own trading models. And since R is a comprehensive programming language, you can even pull Twitter feeds, news feeds, earnings reports. etc. combined with sentiment analysis, natural language processing, or whatever your heart desires to build just about any trading engine you can imagine.

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