Simulation for Data Science with R

Matthias Templ

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Harness actionable insights from your data with computational statistics and simulations using R

About This Book

- Learn five different simulation techniques (Monte Carlo, Discrete Event Simulation, System Dynamics, Agent-Based Modeling, and Resampling) in-depth using real-world case studies
- A unique book that teaches you the essential and fundamental concepts in statistical modeling and simulation

Who This Book Is For

This book is for users who are familiar with computational methods. If you want to learn about the advanced features of R, including the computer-intense Monte-Carlo methods as well as computational tools for statistical simulation, then this book is for you. Good knowledge of R programming is assumed/required.

What You Will Learn

- The book aims to explore advanced R features to simulate data to extract insights from your data.
- Get to know the advanced features of R including high-performance computing and advanced data manipulation
- See random number simulation used to simulate distributions, data sets, and populations
- Simulate close-to-reality populations as the basis for agent-based micro-, model- and design-based simulations
- Applications to design statistical solutions with R for solving scientific and real world problems
- Comprehensive coverage of several R statistical packages like boot, simPop, VIM, data.table, dplyr, parallel, StatDA, simecol, simecolModels, deSolve and many more.

In Detail

Data Science with R aims to teach you how to begin performing data science tasks by taking advantage of Rs powerful ecosystem of packages. R being the most widely used programming language when used with data science can be a powerful combination to solve complexities involved with varied data sets in the real world.

The book will provide a computational and methodological framework for statistical simulation to the users. Through this book, you will get in grips with the software environment R. After getting to know the background of popular methods in the area of computational statistics, you will see some applications in R to better understand the methods as well as gaining experience of working with real-world data and real-world problems. This book helps uncover the large-scale patterns in complex systems where interdependencies and variation are critical. An effective simulation is driven by data generating processes that accurately reflect real physical populations. You will learn how to plan and structure a simulation project to aid in the decision-making process as well as the presentation of results.

By the end of this book, you reader will get in touch with the software environment R. After getting background on popular methods in the area, you will see applications in R to better understand the methods as well as to gain experience when working on real-world data and real-world problems.

Style and approach

This book takes a practical, hands-on approach to explain the statistical computing methods, gives advice on the usage of these methods, and provides computational tools to help you solve common problems in statistical simulation and computer-intense methods.

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From reader reviews:

Judith Rayl:

Reading can called imagination hangout, why? Because when you find yourself reading a book particularly book entitled Simulation for Data Science with R your mind will drift away trough every dimension, wandering in every single aspect that maybe unfamiliar for but surely will become your mind friends. Imaging just about every word written in a book then become one contact form conclusion and explanation that maybe you never get previous to. The Simulation for Data Science with R giving you one more experience more than blown away your head but also giving you useful info for your better life on this era. So now let us demonstrate the relaxing pattern here is your body and mind will be pleased when you are finished examining it, like winning an activity. Do you want to try this extraordinary paying spare time activity?

Joan Munoz:

Simulation for Data Science with R can be one of your nice books that are good idea. Many of us recommend that straight away because this book has good vocabulary that will increase your knowledge in words, easy to understand, bit entertaining but nonetheless delivering the information. The author giving his/her effort to put every word into delight arrangement in writing Simulation for Data Science with R but doesn't forget the main level, giving the reader the hottest in addition to based confirm resource details that maybe you can be certainly one of it. This great information could drawn you into completely new stage of crucial considering.

Kenneth Rogers:

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