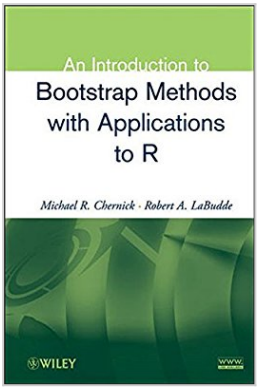

An Introduction to Bootstrap Methods with Applications to R

By Michael R. Chernick, Robert A. LaBudde

An Introduction to Bootstrap Methods with Applications to R By Michael R. Chernick, Robert A. LaBudde

A comprehensive introduction to bootstrap methods in the R programming environment

Bootstrap methods provide a powerful approach to statistical data analysis, as they have more general applications than standard parametric methods. An Introduction to Bootstrap Methods with Applications to R explores the practicality of this approach and successfully utilizes R to illustrate applications for the bootstrap and other resampling methods. This book provides a modern introduction to bootstrap methods for readers who do not have an extensive background in advanced mathematics. Emphasis throughout is on the use of bootstrap methods as an exploratory tool, including its value in variable selection and other modeling environments.

The authors begin with a description of bootstrap methods and its relationship to other resampling methods, along with an overview of the wide variety of applications of the approach. Subsequent chapters offer coverage of improved confidence set estimation, estimation of error rates in discriminant analysis, and applications to a wide variety of hypothesis testing and estimation problems, including pharmaceutical, genomics, and economics. To inform readers on the limitations of the method, the book also exhibits counterexamples to the consistency of bootstrap methods.

An introduction to R programming provides the needed preparation to work with the numerous exercises and applications presented throughout the book. A related website houses the book's R subroutines, and an extensive listing of references provides resources for further study.

Discussing the topic at a remarkably practical and accessible level, An Introduction to Bootstrap Methods with Applications to R is an excellent book for introductory courses on bootstrap and resampling methods at the upper-undergraduate and graduate levels. It also serves as an insightful reference for practitioners working with data in engineering, medicine, and the social sciences who would like to acquire a basic understanding of bootstrap methods.

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Editorial Review

Review

"I recommend this text to anyone wishing to apply computationally intensive methods and if you only purchase one book on bootstrap methods then this could be the book for you!." (*International Statistical Review*, 2012)

From the Back Cover
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