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Recursive Partitioning and Applications (Springer Series in Statistics)

Heping Zhang, Burton H. Singer
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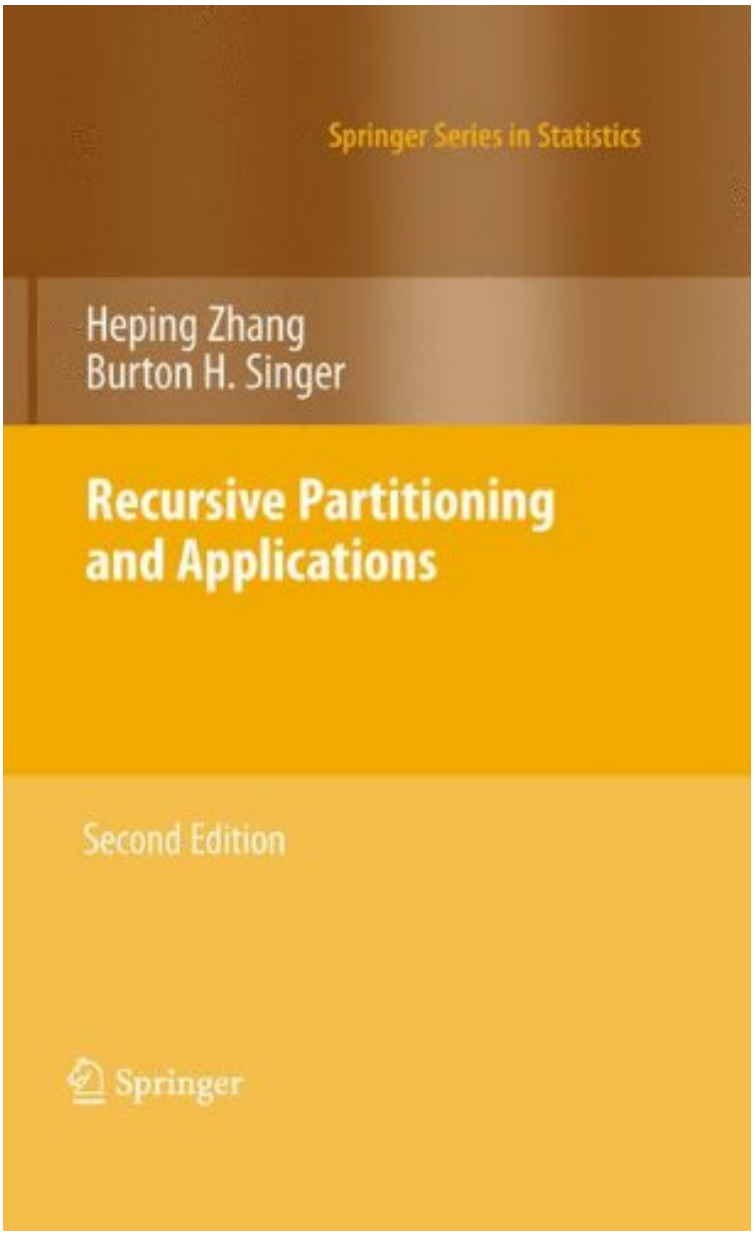

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#3014427 in Books Heping Zhang 2010-07-19Original language:EnglishPDF # 1 9.21 x .69 x 6.14l, 1.24 #File Name: 1441968237262 pagesRecursive Partitioning and Applications | File size: 46.Mb

Heping Zhang, Burton H. Singer : Recursive Partitioning and Applications (Springer Series in Statistics) before purchasing it in order to gage whether or not it would be worth my time, and all praised Recursive Partitioning and Applications (Springer Series in Statistics):

1 of 1 people found the following review helpful. Excellent resource to understand recursive partitioning by DrBy B. D. NossamanAs medical care evolves into reviewing large database files and performing statistical analysis, the use of recessive partitioning as a statistical technique allows the development of tailored care to groups of patients who are discovered to be at risk for adverse events rather than through logistic regression analysis. Excellent resource to understand recursive partitioning by Dr. Zhang and Singer.30 of 30 people found the following review helpful. a fitting sequel to CART with emphasis on the health science applicationsBy Michael R. ChernickBrieman, Olshen, Friedman and Stone introduced CART in their 1984 book. It is an effective methodology and software tool for constructin classification and regression trees. The procedure is also referred to as recursive partitioning.There has been a great deal of research over the past 16 on this topic and the authors cover the basics and the new material well. New ideas include survival trees and adaptive splines (including MARS). It provides interesting applications to health science problems. Th authors compare tree based methods to logistic regression. This is a notable successor to the CART text.It is a little more difficult to read then CART. CART was motivated by biomedical problems but the book covered other applications in business and pattern recognition as well. This texts puts an emphasis on the important medical applications.11 of 11 people found the following review helpful. Recursive PartitioningBy Walter PsoterRecursive Partitioning in the Health Sciences is one of the few statistical texts specifically written with the epidemiologist as a target end user, similar in genre to Schlesselman's Case Control Studies. The subject matter is relatively new in the field of epidemiology and as such needs to be related contextually to more traditional statistical approaches. The authors accomplish this by incorporating introductory chapters on methods corresponding to those being addressed by the nonparametric methods of recursive partitioning and multivariate adaptive regression splines (MARS). Additionally, they compare results between these tried and true statistical methods and recursive partitioning and MARS with many illustrative examples. This last is a strength of this book. Examples of each topic under discussion are carefully considered in a stepwise manner. The book is nicely balanced in terms of theoretic background and practical applications, with the writing generally intelligible to the non-statistician. The book has provided our group with background material to allow utilization of recursive partitioning in our research. As the technique of recursive partitioning becomes recognized and subsequently applied in the epidemiological field, this book may well become a classic.

Multiple complex pathways, characterized by interrelated events and c- ditions, represent routes to many illnesses, diseases, and ultimately death. Although there are substantial data and plausibility arguments suppo- ing many conditions as contributory components of pathways to illness and disease end points, we have, historically, lacked an e?ective method- ogy for identifying the structure of the full pathways. Regression methods, with strong linearity assumptions and data-basedconstraints onthe extent and order of interaction terms, have traditionally been the strategies of choice for relating outcomes to potentially complex explanatory pathways. However, nonlinear relationships among candidate explanatory variables are a generic feature that must be dealt with in any characterization of how health outcomes come about. It is noteworthy that similar challenges arise from data analyses in Economics, Finance, Engineering, etc. Thus, the purpose of this book is to demonstrate the e?ectiveness of a relatively recently developed methodologyrecursive partitioningas a response to this challenge. We also compare and contrast what is learned via rec- sive partitioning with results obtained on the same data sets using more traditional methods. This serves to highlight exactly whereand for what kinds of questionsrecursive partitioningbased strategies have a decisive advantage over classical regression techniques.

STATISTICAL METHODS IN MEDICAL RESEARCH "The beauty of the Zhang and Singers book is that it gives an excellent comparison between conventional regression models and recursive partitioning techniques. This comparative approach gives the reader insight into how a recursive partitioning technique can have an advantage over the conventional methodsOverall, the book provides an excellent introduction to tree based methods and their applications. It can be a good place to start learning about recursive partitioning. In addition, biostatisticians will enjoy the real life examples that have been used in the book."From the Back CoverThe routes to many important outcomes including diseases and ultimately death as well as financial credit consist of multiple complex pathways containing interrelated events and conditions. We have historically lacked effective methodologies for identifying these pathways and their non-linear and interacting features. This book focuses on recursive partitioning strategies as a response to the challenge of pathway characterization. A highlight of the second edition is the many worked examples, most of them from epidemiology, bioinformatics, molecular genetics, physiology, social demography, banking, and marketing. The statistical issues, conceptual and computational, are not only treated in detail in the context of important scientific questions, but also an array of substantively-driven judgments are explicitly integrated in the presentation of examples. Going considerably beyond the standard treatments of recursive partitioning that focus on pathway representations via single trees, this second edition has entirely new material devoted to forests from predictive and interpretive perspectives. For contexts where identification of factors contributing to outcomes is a central issue, both random and deterministic forest generation methods are introduced via examples in genetics and epidemiology. The trees in

deterministic forests are reproducible and more easily interpretable than the components of random forests. Also new in the second edition is an extensive treatment of survival forests and post-market evaluation of treatment effectiveness. Heping Zhang is Professor of Public Health, Statistics, and Child Study, and director of the Collaborative Center for Statistics in Science, at Yale University. He is a Fellow of the American Statistical Association and the Institute of Mathematical Statistics, a Myrto Lefkopoulou Distinguished Lecturer Awarded by Harvard School of Public Health, and a Medallion lecturer selected by the Institute of Mathematical Statistics. Burton Singer is Courtesy Professor in the Emerging Pathogens Institute at University of Florida, and previously Charles and Marie Robertson Professor of Public and International Affairs at Princeton University. He is a member of the National Academy of Sciences and Institute of Medicine of the National Academies, and a Fellow of the American Statistical Association.About the AuthorHeping Zhang is Professor of Public Health, Statistics, and Child Study, and director of the Collaborative Center for Statistics in Science, at Yale University. He is a Fellow of the American Statistical Association and the Institute of Mathematical Statistics, a Myrto Lefkopoulou Distinguished Lecturer Awarded by Harvard School of Public Health, and a Medallion lecturer selected by the Institute of Mathematical Statistics. Burton Singer is Courtesy Professor in the Emerging Pathogens Institute at University of Florida, and previously Charles and Marie Robertson Professor of Public and International Affairs at Princeton University. He is a member of the National Academy of Sciences and Institute of Medicine of the National Academies, and a Fellow of the American Statistical Association.