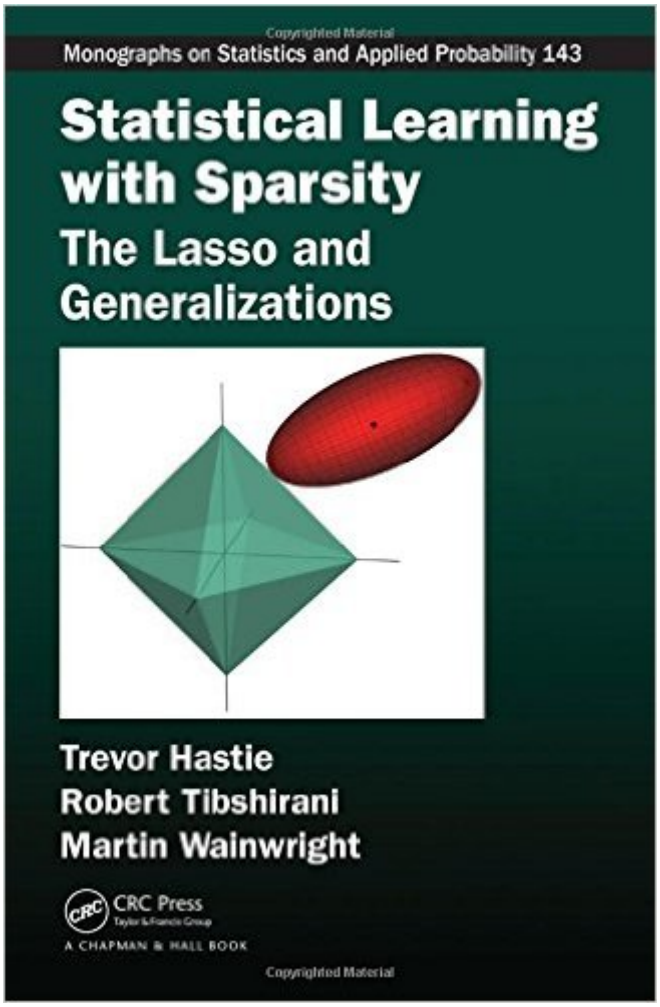
Statistical Learning With Sparsity: The Lasso And Generalizations (Chapman & Hall/CRC Monographs On Statistics & Applied Probability)



Synopsis

Discover New Methods for Dealing with High-Dimensional Data A sparse statistical model has only a small number of nonzero parameters or weights; therefore, it is much easier to estimate and interpret than a dense model. Statistical Learning with Sparsity: The Lasso and Generalizations presents methods that exploit sparsity to help recover the underlying signal in a set of data. Top experts in this rapidly evolving field, the authors describe the lasso for linear regression and a simple coordinate descent algorithm for its computation. They discuss the application of â„“1 penalties to generalized linear models and support vector machines, cover generalized penalties such as the elastic net and group lasso, and review numerical methods for optimization. They also present statistical inference methods for fitted (lasso) models, including the bootstrap, Bayesian methods, and recently developed approaches. In addition, the book examines matrix decomposition, sparse multivariate analysis, graphical models, and compressed sensing. It concludes with a survey of theoretical results for the lasso. In this age of big data, the number of features measured on a person or object can be large and might be larger than the number of observations. This book shows how the sparsity assumption allows us to tackle these problems and extract useful and reproducible patterns from big datasets. Data analysts, computer scientists, and theorists will appreciate this thorough and up-to-date treatment of sparse statistical modeling.

Book Information

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Customer Reviews

This book is about bet on sparsity. In Machine Learning, there are plenty of approaches that might work on data of interest. The accent is on cases p>>n and one wants to get more interpretable models.

Hastie and Tibshirani are machine learning superstars and I believe this new resource will play an important role in statistical learning just like their previous texts. The timing is perfect for a deep look at the lasso as big data is placing stringent requirements on how enterprise data assets are being used for strategic advantage.

The statistics/machine learning community has been bombarded with so many variants of LASSO, for so many different types of methodology, without any general, unifying treatment of ths subject. The result is more confusion than insight. This book fills that void, and is sure to be much cited as a reference. It will be quite useful to me.

Awesome! This book is right on time. But it. Read it.

Mining, Inference, and Prediction, Second Edition (Springer Series in Statistics) An Introduction to Statistical Learning: with Applications in R (Springer Texts in Statistics) Prolog and its Applications: A Japanese perspective (Chapman & Hall Computing) Probability and Statistics for Engineering and the Sciences Analysis of Financial Time Series (Wiley Series in Probability and Statistics) Applied Probability and Stochastic Processes