MR3445293 62G05 62G10 62G20
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★**Nonparametric estimation under shape constraints.**
Estimators, algorithms and asymptotics.
Cambridge Series in Statistical and Probabilistic Mathematics, 38.
Cambridge University Press, New York, 2014. *xi*+416 *pp. ISBN* 978-0-521-86401-5

This is a very well-written book on nonparametric estimation of functions under shape constraints. The authors start out with providing a number of motivating examples where shape constraints, such as monotonicity, of the function of interest arise naturally. The next two chapters focus on the specific problem of estimating a monotone function, including developing estimators and an asymptotic theory of these. Estimators satisfying more complex shape constraints are presented and discussed in the next chapter. Given these estimators, the authors introduce the concept of minimax risk as a tool for comparing and ranking them. Many shape-constrained estimators are computationally intensive (non-smooth), and the authors discuss algorithms for implementing (smoothing) them. A general asymptotic theory for shape constrained estimators is developed in the final chapters of the book.

The book provides an up-to-date comprehensive review of both classical and new methods for shape constrained estimators. It does so in a clear and well-explained manner, including many real-world examples to motivate the methodology and theory. As such it contains a nice mix of theory and applications, and so should be of interest to both students and researchers.

The subjects covered in this book include the ones discussed in the second part of [P. Groeneboom and J. A. Wellner, *Information bounds and nonparametric maximum likelihood estimation*, DMV Sem., 19, Birkhäuser, Basel, 1992; MR1180321] but the present text goes beyond the material of that book by also covering methods and theory developed since its publication.

The book (or parts of it) would be suitable for an advanced undergraduate or master's course on estimation under shape constraints. It includes numerous exercises for that purpose; unfortunately, however, there are no data exercises.

I thoroughly enjoyed reading this book: it gives a detailed treatment of most relevant features of shape constrained estimation, and does so in a manner that makes it immensely readable, whether you are a novice or an expert in the area.

Dennis Kristensen