# Nonparametric estimation under shape constraints
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After pioneering work of (among others) Brunk, Chernoff and Prakasa Rao, summarized in the book of the "four B's" (Barlow, Bartholomew, Bremner and Brunk), the field of isotonic regression and shape constrained inference temporarily received less attention. But there was a survival of interest because of several reasons.

Firstly, there was analytic progress when it became clear how to compute the "Chernoffian distribution", first studied by Chernoff in a study of an estimator of the mode of a distribution. This arose from a study of the connection between Brownian motion with a parabolic drift and Airy functions. Secondly, the relevance of the theory for nonparametric estimates of distribution functions in inverse problems became apparent, in particular for deconvolution and interval censoring models. And thirdly, fast algorithms became available for computing the shape-constrained estimates. In my lecture I will discuss all three angles to these problems, with an emphasis on recent results and open problems.