عنوان مقاله:
Data Tuning Methodology

محل انتشار:
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خلاصه مقاله:

Data-tuning methods alter the empirical distribution so as to enhance performance of a relatively elementary technique. The idea is to retain the advantageous features of the simpler method, and at the same time improve its performance in specific ways. Different approaches to data tuning include physically altering the data. (data sharpening), reweighting or tilting the data (the biased bootstrap), adding extra "pseudo data" derived from the original data, or a combination of all three. One approach to data sharpening involves altering the positions of data values, controlled by minimizing a measure of the total distance that the data are moved subject to a constraint. For example, to make a point estimate more robust we move the data in such a way as to reduce variability; to render a nonparametric density estimate unimodal we move the data by the least amount subject to a conventional kernel estimate, for a given bandwidth, being unimodal; to render a regression estimate monotone increasing we might change the values of explanatory variables; and so on. There are many applications. Evidence is gorwing that sharpening is more effective than tilting (i.e. reweighting), since it does not reduce effective sample size.

کلمات کلیدی:

Bias reduction, bootstrap, density estimation, distance-based methods, nonparametric regression, estimation under constraints, unimodality, variance reduction.

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