Estimating a Boundary in the Presence of Observation Error

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Abstract

When stochastic errors are added to data from a distribution with a sharp boundary, nonparametric estimation of the boundary can be interpreted as a problem of deconvolution. However, that view is not necessarily the most appropriate one, since convergence rates in deconvolution problems are often very slow, particularly when the error distribution is normal. For this reason we argue that, rather than attempting to estimate the distribution of the uncorrupted data, and thereby approximate the boundary, one might focus more directly on the boundary estimation problem. We suggest estimating the boundary by using a neural computing technique applied to the corrupted data.

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