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Ideal denoising within a family of tree-structured wavelet estimators. (English)

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Summary: We focus on the performances of tree-structured wavelet estimators belonging to a large family of keep-or-kill rules, namely the Vertical Block Thresholding family. For each estimator, we provide the maximal functional space (maxiset) for which the quadratic risk reaches a given rate of convergence. Following a discussion on the maxiset embeddings, we identify the ideal estimator of this family, that is the one associated with the largest maxiset. We emphasize the importance of such a result since the ideal estimator is different from the usual (plug-in) estimator used to mimic the performances of the Oracle. Finally, we confirm the good performances of the ideal estimator compared to the other elements of that family through extensive numerical experiments.

MSC:
62G05 Nonparametric estimation
62G20 Asymptotic properties of nonparametric inference
65T60 Numerical methods for wavelets

Keywords:
Besov spaces; curve estimation; CART; maxiset and oracle approaches; rate of convergence; thresholding methods; tree structure; wavelet estimators

Software:
reccv

Full Text: DOI Euclid

References:


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