

Averages of Best Wavelet Basis Estimates for Denoising

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ABSTRACT

Donoho and Johnstone introduced an adaptive algorithm that extends nonlinear thresholding denoising in a fixed orthonormal basis to a multiple bases setting. In that paper a search for an optimal basis from a large collection of orthonormal bases (i.e. a *library*) was introduced. That technique gives the, so-called, best ortho-basis estimate. In this paper we study the situation when many such libraries are available. We propose an algorithm that exploits the availability of many best ortho-basis approximations and uses an strengthening of the convexity of the L^2 norm to produce an estimate which is an average of best ortho-basis estimates. Conditions under which the proposed algorithm offers improvements and corresponding numerical examples are also described.

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