Bayesian Wavelet Shrinkage with Beta Priors

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Bayesian shrinkage methods in the wavelet domain have been considerably studied in the recent decades. These methods allow the incorporation of prior information about the unknown signal such as smoothness, periodicity, sparseness, self-similarity and monotonicity.

The goal of our work is to study this problem of bayesian wavelet shrinkage using the shifted beta distribution as prior distribution for the wavelet coefficients and two distributions associated with this family, the triangular and Bickel distributions. Performances of the Bayes rules associated to these priors are compared with classical shrinkage rules in the so called Donoho-Johnstone test functions.