OPTIMAL PREFILTERS FOR THR MULTIWAVELET FILTER BANKS

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Abstract

This paper proposes a method to obtain optimal 2nd-order approximationpreserving prefilters for a given orthogonal unbalanced multiwavelet basis.This procedure uses the prefilter construction introduced by Hardin andRoach. The prefilter optimization scheme exploits the Taylor seriesexpansion of the prefilter combined with the multiwavelet. Using the DGHM multiwavelet with the obtained optimal prefilter, we find that quadraticinput signals are annihilated by the high-pass portion of filter bank at thefirst level of decomposition.

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