Tensor Product Multiresolution analysis with Error Control for Compact Image Representation

A class of multiresolution representations based on nonlinear prediction is studied in the multivariate context based on tensor product strategies. In contrast to standard linear wavelet trnasforms, these representations cannot be thought of as a change of basis, and the error induced by thresholding or quantizing the coefficients requires a different analysis. we propose specific error control algorithms which ensure a prescribed accuracy in various norms when performing such operations on the coefficients. These algorithms are compared with standard thresholding, for synthetic and real images.

Key Words. Tensor Product, Multi-scale decomposition, Non Linearity, Stability

AMS(MOS) subject classifications.