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Claudio Rosito Jung* (crjung@unisinis.br), Graduate School of Applied Computing, Av. Unisinos, 950, Sao Leopoldo, RS 93022-000, Brazil. *Wavelet analysis in image denoising and segmentation.*

This work presents an overview on wavelet analysis for image denoising and segmentation. The underlying idea is to apply the wavelet transform to the original image, and to explore statistical properties of wavelet coefficients to discriminate relevant image structure from coefficients due to noise. Although the Gaussian model is a common assumption for noisy wavelet coefficients, several different statistical models have been used to model coefficients of natural images, and this work comments on a few of them. Also, the evolution of wavelet coefficients across scales is explored, since noisy coefficients tend to vanish in coarser scales. When color images are employed, different color channels must be explored. The individual analysis of each color channel is not an adequate choice, since the resulting image may present color distortion. This work presents ideas to explore the joint information of all color channels, trying to minimize color distortion. Finally, for image segmentation, relevant wavelet coefficients (related to image structures and not to noise) are used as cues to obtain the boundaries of image objects. Again, the inter-scale relations of wavelet coefficients are explored to provide a multiresolution segmented image. (Received January 30, 2008)