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A JUST–NOTICEABLE DISTORTION (JND) PROFILE FOR BALANCED MULTIWAVELETS (TueAmPO1)

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✱ Abstract :

In this paper, we propose a new perceptual model for balanced multiwavelet (BMW) transforms. The latter trans–form achieves simultaneous orthogonality and symmetry without requiring any input prefiltering. The proposed model is derived using multiresolution domain extensions of Chou's model. The proposed model depends only on the image activity and not the multifilter sets used by the transform, unlike those developed for scalar wavelets. The perceptual redundancy, present in the image, is efficiently quantified through a just–noticeable distortion (JND) profile. In this model, a visibility threshold of distor–tion is assigned to each BMW subband coefficient. Therefore, perceptually insignificant subband components can be clearly discriminated from peceptually significant ones. For instance, this discrimination can be constructively used to achieve the imperceptibility requirement often encountered in watermarking applications.

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