A QUANTIZATION NOISE ROBUST SHAPE PREDICTION ALGORITHM (WedPmPO2)

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✱ Abstract :

This paper introduces a quantization noise robust algorithm for object's shape prediction in a video sequence. The algorithm is based on pixel representation in the undecimated wavelet domain for tracking of user–defined shapes contaminated by the compression noise of video sequences. In the proposed algorithm, the amplitude of coefficients in the best basis tree expansion of undecimated wavelet packet transform is used as feature vectors (FVs). FVs robustness against quantization noise has been achieved through inherent denoising and edge component separation in the best basis selection algorithm. The algorithm uses these FVs to track the pixels of small square blocks located at the neighborhood of the object boundary. Searching for the best matched block has been performed through the use of conventional block matching algorithm in the wavelet domain. Our experimental results show that the algorithm is robust against the quantization noise of rigid/non–rigid object's shape translation, rotation and/or scaling.

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