A New Texture Synthesis Algorithm Based on Wavelet Packet Tree

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Abstract

This paper presents an efficient texture synthesis based on wavelet packet tree _TSWPT_. It has the advantage of using a multiresolution representation with a greater diversity ofbases functions for the nonlinear time series applications such as fractal images. The input image is decomposed into wavelet packet coefficients, which are rearranged and organized to form hierarchical trees called wavelet packet trees. A 2-step matching, that is, coarse matching based on low-frequency wavelet packet coefficients followed by fine matching based on middle-high-frequency wavelet packet coefficients, is proposed for texture synthesis. Experimental results show that the TSWPT algorithm is preferable, especially in terms of computation time.