



A NEW METHOD FOR MULTI-RESOLUTION TEXTURE SEGMENTATION USING GAUSSIAN MARKOV RANDOM FIELDS (MonPmOR2)

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★ Abstract :

A new approach to multi-resolution modeling of images is introduced and applied to the task of semi-supervised texture segmentation using Gaussian Markov random fields (GMRFs). It is shown that traditional GMRF modeling of multi-resolution coefficients is incapable of accounting for the non-Gaussian statistics which often characterize the multi-resolution coefficients. On the other hand, the marginal distributions of the new approach can be closely modeled using a Gaussian distribution, and therefore lend itself efficiently to GMRF statistical modeling of images. Experimental results of texture segmentation using textures with non-Gaussian marginal distributions, suggest that the new framework is superior to traditional GMRF modeling of the multi-resolution coefficients for segmentation of non Gaussian textures.