WAVELET DOMAIN ASTRONOMICAL MULTIBAND IMAGE FUSION AND RESTORATION USING MARKOV QUADTREE AND COPULAS (ThuPmOR10)

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Abstract :

Fusion of multiband images is of great interest in astronomy, allowing to obtain an efficient summary of the whole multiband information in a single scene. Multiscale analysis is a popular choice in recent research . Generally fusion is more difficult for noisy observations. However, wavelet framework is very well adapted for denoising. Recently, an efficient Markovian modeling of wavelets was introduced by crous et al capturing interscale and spacial wavelet coefficient correlations. In this paper we use a more general Markovian framework modeling not only spatial and interscale dependencies as the existent models but also interband correlation for multiband image fusion and denoising. Moreover, the multidimensional likelihood is modeled using the copulas theory allowing us to use any kind of marginal densities with a given interband correlation.

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