Pansharpening of Multispectral Satellite Images via Lattice Structures

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Abstract

Since satellite images with high spatial and spectral quality are highly desired for remote sensing applications, various algorithms have been developed for the fusion of multispectral and panchromatic images. Wavelet transform based mergers have found enormous interest in the fusion community. This paper introduces undecimated filterbanks with lattice structure and applies them to the pansharpening problem. Multispectral and panchromatic images are decomposed using the developed lattice analysis structure into subbands which are combined by using a predefined fusion rule. The fused image is obtained by the inverse lattice filtering of the fused subbands. Fusion results and quality metrics show that the proposed method can be a good alternative to the other well-known pansharpening methods.

References


Index Terms

Computer Science Image Processing
Keywords

Image fusion, pansharpening, multispectral images, multiresolution analysis, lattice filters.