EFFICIENT LOSSLESS COLOUR IMAGE CODING WITH SPECK (WedAmPO3)

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Abstract :

This paper proposes an efficient extension of Set Partitioning Embedded bloCK (SPECK) algorithm to lossless colour image coding by using the integer wavelet transform. First, the RGB image is losslessly transformed to LC (Luminance−Chrominance) plane. Then, an integer wavelet transform is applied to each plane. Depending on the energy of each transformed plane and the correlation between each pair of planes, we select two planes to be grouped together into the List of Insignificant Sets LIS in SPECK algorithm in order to exploit the inter−redundancy of information so as to achieve a better performance of coding. The idea behind this is that the sets in LIS at the same location in two correlated planes with close energy are very likely to have the same information of significance with respect to a given threshold. Hence, joining them together can yield an important gain of the amount of bits. This novel method has been assessed in comparison to the separated one presented in [5] and the simulation results show a better performance of the proposed technique.

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