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基于Context模型的非嵌入式小波彩色图像编码方案

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Non-embedded wavelet color image coding scheme based on Context modeling

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全文: PDF (349 KB) HTML (KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 在零树小波思想的基础上,结合Context模型提出了一种新的彩色图像编码方案.首先对原彩色图像的3个分量进行色标体系变换,然后对变换后的3个分量分别进行离散小波变换.离散小波变换后的系数首先由门限值筛选操作产生一个Significance Map符号流,该符号流用零树结构表示.接着对非零系数进行均匀量化,将大于门限的值分解为:MSB符号流及剩余的二进制符号流.为了降低存在于Significance Map及MSB符号流中的冗余,我们提出了简单有效的Context模型,而对剩余的具有弱相关性的二进制符号流则直接使用自适应算术编码.经过实验对比证明了该方案在彩色图像编码中具有较优的压缩特性.

关键词： 离散小波变换 零树结构 Context模型 自适应算术编码

Abstract： A novel wavelet coding scheme of color image based on Context modeling is presented.the three components of original color image are transformed into another three components.Then,these three components are processed separately:The discrete wavelet transformed coefficients are first selected by a threshold.The significant coefficients are then quantized with a uniform quantizer and then decomposed into two parts:the most significant bit and the residual bits for entropy encoding.Simple but effective Context modeling schemes are proposed for better squeezing of the redundancy lying in the significant map symbol stream determined by the threshold operation and the MSB symbol stream decomposed from the quantized significant coefficients.With these innovations,the proposed coding scheme is competitive with other best coding algorithms reported in the literature.

Key words： wavelet transform zero tree contert modeeing adaptive arithnetic coding

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