[2008-1128] 一种基于EBCOT的感兴趣区图像编码算法

孙超,姜守达,王建峰

摘要
优化截断嵌入式编码（EBCOT）是JPEG2000的核心，EBCOT所采用的基于码块的率失真优化方式为实现图像感兴趣区编码提供了良好的基础．本文分析了其中具有代表性的隐式ROI（Region Of Interest）编码算法，并提出了一种改进方法．通过构造加权函数，合理地为ROI码块分配权重，在保证ROI信息被优先编码的同时，降低ROI码块中背景区域小波系数的影响，提高了重建图像ROI的质量．实验结果表明，算法在低码率下重建图像ROI质量提高明显，在高码率下也能够很好兼顾重建图像背景区域的质量．
关键词　　优化截断嵌入式编码　感兴趣区　隐式ROI　JPEG2000
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[2008-1128] A Region-of-interest Image Coding Algorithm based on EBCOT

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Abstract
Embedded Block Coding with Optimized Truncation(EBCOT) is the core of JPEG2000. The usage of rate-distortion optimization which is based on pieces of code in EBCOT provides a good foundation for the realization of ROI image coding. This paper analyzed the representative approach of the implicit ROI (Region of Interest) coding algorithm and proposed an improved method. By constructing a weighted function, giving reasonable weight for ROI code block, reducing the wavelet coefficients effect in the context region of the ROI code block while ensuring the ROI information is encoded with high priority at the same time, the proposed method improved the quality of the reconstructed image of ROI. Experimental results show that the reconstructed ROI image quality is significantly improved under low bit rate. Under high bit rate, the reconstructed image background quality can be improved also.
Key words　　EBCOT　Region-of-interest　Implicit ROI　JPEG2000

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