

基于图像融合模型的矢量逆半调算法

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摘要

针对矢量误差分散半调图提出了一种彩色逆半调算法。首先, 分析了基于矩阵增益模型的误差分散系统, 发现矢量逆半调问题可等效为相关性高频噪声的抑制问题; 然后利用K-L变换去除相关性并基于Laplacian金字塔构造图像融合模型, 该模型能将未知特性的高频噪声转化为易处理的脉冲噪声; 最后使用维纳滤波器和中值滤波器去噪。实验表明, 该算法能克服色偏, 减少杂色, 较准确地再现连续色调图像, 逆半调图像的峰值信噪比传统算法提高2~3 dB。

关键词 [信息处理技术](#) [逆半调](#); [误差分散](#); [矩阵增益模型](#); [图像融合模型](#)

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Vector inverse halftoning algorithm based on image fusion model

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Abstract

A color inverse halftoning algorithm was proposed for vector error diffusion halftone images. The analysis of matrix gain model based error diffusion system demonstrates that the vector inverse halftoning problem is equivalent to that of refining correlated high frequency noise. By using K-L transformation to remove correlation among different color opponents, an image fusion model based on laplacian pyramid, which is able to convert high frequency noise to tractable impulse noise, was constructed. Finally Wiener filter with median filter was chosen as a denoising processor. Experiments show that the proposed scheme can overcome color shift and reduce mottle. Moreover the scheme can well reconstruct contone image and outperform the traditional methods at peak signal to noise ratio by 2~3 dB.

Key words [information processing](#) [inverse halftoning](#); [error diffusion](#); [matrix gain model](#); [image fusion model](#)

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