

光电信息获取与处理

基于Matlab的同态滤波器的优化设计

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摘要:

介绍同态滤波器的基本原理, 基于Matlab软件, 设计了适用的同态滤波器模型, 并给出了其表达式参数, 在此基础上, 将同态滤波方法应用到彩色图像的光照补偿和对比度增强中。结果表明: 经处理后的图像, 局部对比度增强效果明显, 较好地保持了图像的原始面貌, 取得了预期的理想滤波效果。基于Matlab的同态滤波, 能更好地适合人眼的视觉特性, 提供了图像分析与判读的一种新方法。

关键词: 同态滤波 光照补偿 图像对比度

Optimal design of homomorphic filter based on Matlab

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Abstract:

The basic principle of the homomorphic filter is introduced. A homomorphic filter model and parameter expression was established by using Matlab. On this basis, the homomorphic filtering method was applied to the brightness of color image and image contrast enhancement. It is shown that the method performs well in enhancing the local contrast of an image while maintaining its global appearance, and the expected filter effect is achieved. Experiments prove that the method is suitable for human visual observation to conduct image analysis and judge.

Keywords: homomorphic filter illumination compensation image contrast

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