

基于直方图的白平衡算法的研究

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摘要: 针对常见基于直方图的白平衡算法对于 RGB 各通道直方图相似度低时失效的问题, 提出了一种基于直方图匹配改进的自动白平衡算法. 利用 RGB 通道直方图的相似度对基于直方图匹配的白平衡算法增加有效性判断, 对于直方图相似度低的图片采用直方图平移算法处理. 结合直方图匹配与直方图平移的特点, 弥补单个算法的不足. 通过对大量图片测试表明, 该算法对图像偏色有较好的矫正效果, 且适用范围提高了 11%.

关键词: 白平衡; 直方图匹配; 直方图平移; 直方图相似度; 色偏

Automatic White Balance Algorithm Based on Histogram

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Abstract: The common automatic white balance algorithm based on histogram is failure when there are great different between their color histograms. An automatic white balance based on histogram matching is applied. The histogram matching is used when three channels have high similarity in histogram. While the histogram similarity is low, histogram translation method is used to correct images respectively. The combination of histogram matching and histogram translation algorithm makes up for the deficiency of the two algorithms effectively. Experimental results show that, on a large number of natural images set, the method has better color balance effect and the applicable range of the algorithm is increased by 11%.

Key words: white balance; histogram matching; histogram translation; histogram similarity; color cast

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