



航空学报 » 2013, Vol. 34 » Issue (3) :636-643 DOI: 10.7527/S1000-6893.2013.0101

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一种快速航空图像去雾算法

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A Fast Aerial Image De-haze Algorithm

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摘要

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摘要

基于暗元先验规律的图像去雾算法去雾效果较好,但在进行介质透射率估计时会造成图像中出现方块效应,所以需要进行图像抠图处理。而图像抠图计算复杂度非常高,使得图像去雾时间消耗很大。本文提出一种快速图像去雾算法,使用Kuwahara边缘-角点保持滤波器对大气散射光进行估计,并对所采用的Kuwahara滤波器进行改进。通过增加子块的数目以及进行局部加权等,提高边缘保留效果,抑制方块效应,从而获得较为准确的介质透射率。实验结果表明本文算法时间复杂度低,图像去雾效果好。

关键词: 图像复原 滤波器 图像去雾 暗元先验规律 边缘-角点保持滤波器

Abstract:

An image matting algorithm is employed in order to alleviate the block effect of the image transmission which is generated during conducting the dark channel prior. However, the image de-haze process is very time-consuming as the matting algorithm is of huge computational complexity. A fast algorithm for image haze removal is therefore proposed in which the Kuwahara edge-and-corner preserving filter is used to estimate the atmospheric scattering light and the Kuwahara filter is adapted. By increasing the number of sub-blocks and adjusting the local weight coefficients, etc., the edge preservation is improved and the block effect is restrained, which leads to an accurate media transmission rate. The experimental result shows the algorithm has a low time complexity, while the visual effect of the image is satisfactory after the de-haze restoration.

Keywords: image restoration filter image de-haze dark channel prior edge-and-corner preserving filter

Received 2012-04-27;

Fund:

国家自然科学基金(61074161)

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引用本文:

王敬东, 张文涛, 王子瑞, 许丽红. 一种快速航空图像去雾算法[J]. 航空学报, 2013, 34(3): 636-643. DOI: 10.7527/S1000-6893.2013.0101

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