

基于边缘信息和马尔可夫随机场的图像去模糊

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摘 要: 提出了一种结合图像的边缘信息和改进先验知识的图像去模糊模型, 采用边缘信息和马尔可夫随机场建立了适用于所有类型图片先验知识, 根据提出的新模型能更好地估计模糊图像的模糊核, 达到了更好的去模糊效果. 对三幅不同类型的模糊图片进行实验, 三种算法的对比结果表明: 提出的去模糊方法具有较强的通用性, 得到更清晰的去模糊视觉效果, 峰值信噪比分别达到了 26.79 dB、26.33 dB 和 29.81 dB, 平均结构相似度分别为 0.86、0.88 和 0.90, 且相对于现有的算法均有了明显的提高.

关键词: 图像去模糊; 边缘信息; 马尔可夫随机场; 先验知识

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Image Deblurring Based on Edges Information and Markov Random Field

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Abstract: An image deblurring model based on edges information and improved image prior knowledge is proposed, and the edges information and Markov Random Field is used to establish a priori knowledge which is suitable for all types of picture. The fuzzy kernel of fuzzy image can be estimated according to the proposed new model, which gets a better blurring effect. Through the comparison experiment results for three images of different types of fuzzy picture show that the proposed deblurring method has a stronger universality, and obtains more clear visual effect, the Peak Signal to Noise Ratio is respectively up to 26.79 dB, 26.33 dB and 29.81 dB, and the Mean Structure Similitary Index is respectively up to 0.86, 0.88 and 0.90, comparing with the existing algorithms, the proposed algorithm is improved obviously.

Key words: image deblurring; edge information; markov random field; prior knowledge

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