



图6 共聚焦图像去模糊结果

从图6明显可以看出,本文所提出的方法对模糊共聚焦图像进行了有效的复原,图像质量有了显著的提高.同时,通过与其他复原方法作对比可知,应用本文方法得到的复原结果中含有较少的振铃、噪声等负面效应,视觉效果相当清晰,这是明显优于其他方法所得复原结果的.

综合以上实验结果可得,在泊松噪声污染的模糊共聚焦图像复原方面,本文提出的方法具有突出优势.

4 结论

本文针对泊松噪声下共聚焦图像的去卷积问题,提出了一种基于Hessian矩阵范数的正则化方法.与经典的TV正则化方法相比,本文所提方法能够在保留图像细节的同时,消除噪声效应和阶梯效应,得到更加优良的复原结果,实验结果证实了其有效性.

而且,该方法不仅适用于共聚焦显微镜,也能扩展到其他的快速生物成像系统.将来,还可探讨深度学习方法在模型中迭代参数选择的应用.

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