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Large region inpainting by re-weighted regularized methods. (English) Zbl 07393985
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Summary: In the development of imaging science and image processing request in our daily life, inpainting large regions always plays an important role. However, the existing local regularized models and some patch manifold based non-local models are often not effective in restoring the features and patterns in the large missing regions. In this paper, we will apply a strategy of inpainting from outside to inside and propose a re-weighted matching algorithm by closest patch (RWCP), contributing to further enhancing the features in the missing large regions. Additionally, we propose another re-weighted matching algorithm by distance-based weighted average (RWWA), leading to a result with higher PSNR value in some cases. Numerical simulations will demonstrate that for large region inpainting, the proposed method is more applicable than most canonical methods. Moreover, combined with image denoising methods, the proposed model is also applicable for noisy image restoration with large missing regions.

MSC:
65D18 Numerical aspects of computer graphics, image analysis, and computational geometry
68U10 Computing methodologies for image processing
65J22 Numerical solution to inverse problems in abstract spaces

Keywords:
image inpainting; non-local regularization; re-weighted regularization

Full Text: DOI

References:
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J. Yu; Z. Lin; J. Yang; X. Shen; X. Lu and T. Huang, Generative image inpainting with contextual attention, 06 (2018), 5505-5514.


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