

一种邻域嵌入超分辨率算法

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摘 要: 邻域嵌入算法是一种基于学习的超分辨率算法, 但是存在图像特征计算复杂和分类搜索难度大的问题. 本文提出了一种基于二阶梯度比例特征的邻域嵌入超分辨率算法, 其图像特征简单, 分类和搜索复杂度低, 同时图像库存储量小, 适合于硬件实现. 实验结果表明, 与传统超分辨率算法相比, 本文算法重建的高分辨率图像具有更丰富的纹理和更锐利的边缘, 具有更好的主客观质量.

关键词: 图像处理; 超分辨率; 邻域嵌入; 硬件

A Super-resolution Algorithm through Neighbor Embedding

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Abstract: Super-resolution algorithm through neighbor embedding (NE) is based on learning. But the algorithm have the problems that the feature of image is complex and difficult to classify and search. A super-resolution algorithm through neighbor embedding by the feature based on the ratio of multiple directions of two-step grade is proposed. The computational complexity of the feature is low, and classifying and searching the feature is simple. Meanwhile the memory space of the algorithm is small. The super resolution algorithm is easy to implement on hardware. The experiment results shows that, high resolution images reconstructed by the algorithm have a great improvement than other state-of-the-art SR algorithms, also subjectively recover more high frequency detail and sharp edge. The recover images have better subjective and objective quality.

Key words: image processing; super resolution (SR); neighbor embedding; hardware

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