

图形、图像、模式识别

动态单像素模板算法

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摘要 高斯模板用于图像旋转时会产生较严重的模糊, 其原因是大邻域的亮度值加权平均造成的。为减小加权平均的邻域范围, 提出图像空域变换的小邻域局部相关性原理。据此提出动态单像素模板算法: 将当前像素分割为 3×3 的子像素, 对每一个子像素求得一个模板。用当前像素的这9个模板之一和邻域像素的亮度进行卷积运算求得变换后的亮度值。实验和分析表明, 它消除了高斯模板旋转图像时产生模糊的问题。旋转图像的质量与双线性插值算法相近, 同时具有比双线性插值算法和高斯模板算法更高的计算性能。

关键词 [单像素模板](#) [动态模板](#) [像素分割](#) [高斯模板](#) [双线性插值](#) [图像旋转](#)

分类号

Dynamic single pixel template algorithm

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Abstract

Image rotated by Gaussian template will become blur seriously, which is because of weighed average of luminance in a large adjacent region. In order to minimize the weighed averaged region, a principle of local small neighborhood relativity is proposed, according to which a dynamic single pixel template algorithm is proposed to perform special transformation. The present pixel is split into sub-pixel of 3×3 . A template for each sub-pixel is designed. The luminance of transformed pixel is the convolution of one of the nine templates with the adjacent pixels' luminance. Experiments and analysis show that the algorithm has resolved the blur problem of rotated image. The quality of rotated image by the algorithm is near to that of the bilinear interpolation algorithm, and the performance is higher than that of the bilinear interpolation and Gaussian template.

Key words [single pixel template](#) [dynamic template](#) [pixel segmentation](#) [Gaussian template](#) [bilinear interpolation](#) [image rotation](#)

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