论文

基于广义特征点匹配的全自动图像配准

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摘要
该文针对图像配准中用到的特征点提出了狭义特征点和广义特征点两个范畴。广义特征点是针对区域特征定义的，可以有各种不同的定义方法。该文建议了一种广义特征点的定义和自动提取算法。该算法以多尺度小波变换来定位图像中的强棱边点，以局部区域的复杂性和非周期性约束最终检测广义特征点。该文采用两个步骤建立广义特征点之间的对应关系。正确匹配的特征点对作为控制点，以最小化控制点处的均方根误差方法求得用于配准图像的仿射变换参数。用一个迭代机制进一步修正控制点的位置，从而达到最佳的配准精度。多种实验结果展示了该文方法的配准效果。

关键词　图像配准　特征点　匹配准则

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Automatic Image Registration Based on Matching of Feature Points in Broad Sense

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Abstract
Feature points in images are commonly used for image registration. Feature points can be classified as in narrow sense and in broad sense. Feature Points in Broad Sense (FPBS) can be defined in different ways. A new definition of FPBS is proposed that is reasonable for image registration. The FPBS can be detected automatically by the use of multi-scale wavelet transform and a few additional restrictions that control the complexity and nonperiodicity of local regions. After feature point sets are extracted separately
from the two images under consideration, the relation between them is then established by a two-stage matching algorithm. The registration transform is found by minimizing the Root Mean Square Error (RMSE) of the control points. An iterative optimization
mechanism is used to refine the registration. Several experimental results of image registration can illustrate the performance of the
method.

Key words　Image registration　Feature point　Match measure

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