

液晶与显示 2012, (6) 827-831 ISSN: CN:

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成像技术与图像处理

结合区域分割的SIFT图像匹配方法

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摘要：针对待配准图在参考图上存在多个相似的区域,传统的SIFT算法导致匹配点数量较少,影响对模型变换参数估计的情况,提出了结合区域分割的SIFT方法。与原始算法相比,该算法可以得到更多正确的匹配点对,时效性上更优。实验结果表明,该算法比原算法的正确匹配点对提高了近30倍,结合区域分割的特征匹配,剔除了90%以上的误匹配点对,改进后的算法时间性能上也更优。

关键词：图像配准 区域分割 SIFT 特征提取 特征匹配

Image Matching Algorithm Combining SIFT with Region Segmentation

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Abstract: Aiming at solving the situation that the original SIFT algorithm can only get few number of matching points if there are a few regions similar to the matching image on the reference image, which will affect the estimation of parameters in the transformation model, this paper proposed a method combining SIFT with region segmentation. Compared to the original method, our method can obtain much more correct matching points, and is less time consuming. The experiments demonstrate that our method can acquire nearly 30 times more correct matching points than the original one. Combining region segmentation with the original SIFT feature matching, this method can eliminate at least 90% of the erroneous matching points, besides the improved algorithm can lower the computational burden.

Keywords: image matching region segmentation SIFT feature detection feature matching

收稿日期 2012-03-23 修回日期 2012-06-11 网络版发布日期

基金项目:

吉林省科技厅重点项目(No.20100310)

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