论文

基于特征点及优化理论的图像自动拼接方法

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摘要：

提出了一种新的图像拼接方法，首先利用相位一致性(phase congruency)算法进行特征点检测，利用本文提出的匹配点优选策略进行特征点对自动选取，然后用LM（Levenberg　Marquardt）算法进一步优化变换矩阵，最后对拼接结果进行融合处理，获得无缝拼接的图像.该方法把基于特征点和基于优化理论的拼接方法有效相结合，且能充分利用图像重叠部分的信息，在一定程度上克服了噪声及光照不均的影响，较传统方法具有更强的鲁棒性和更高的拼接精确度.试验结果证明了该方法的有效性.

关键词： 相位一致性　特征点提取　匹配点优选　图像拼接

Image Automatic Mosaic Method Based on Feature Pointsand Optimization Theory

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Abstract:

A new method for image mosaic is presented.Phase congruency algorithm is utilized to extract feature points. The proposed auto matching point optimizing method is used to realize the automatic selection of matching points. Levenberg　Marquardt optimization algorithm is used to estimate the transformation matrix between two images accurately. And, the seamless image mosaic is completed with smoothing algorithm. This method combines both feature points　based and optimization theory　based approach effectively, and it can make full use of image overlap information. This method can overcome the effect of noise and non　uniform illumination. Therefore it is more precise and robust than conventional algorithm. The experimental results illustrate that this method is very satisfied.

Keywords: Image mosaic　Phase congruency　Extracting feature points　Matching points optimum seeking

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