多幅图像的高分辨率无缝快速拼接方法

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摘要： 提出一种基于特征不变描述的多幅图像的高分辨率无缝快速拼接方法.采用仿射变换来校正多幅高分辨率图像各种畸变现象，通过 Harris 角点检测算子对图像特征点进行提取，在此基础上利用 SIFT 描述子进行处理，使其具有旋转不变性，采用基于图论中最短路径和最小误差原则选取基准图像，选取配准图像之间的匹配特征的几何误差中值与匹配特征点的平均近似度的和作为边的权值进行图像配准，最后利用加权平均融合方法进行多幅图像无缝平滑，获得无缝拼接高分辨率图像.实验结果验证了本文方法的高效性，有效消除了拼接痕迹，并保持了较高的分辨率.

关键词： 多幅图像；高分辨率；无缝拼接；A-KAZE 特征

High Resolution Seamless Quick Splicing Method for Multiple Images

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Abstract： A fast and seamless high resolution splicing method based on feature invariant description is proposed. The affine transform is used to correct the distortion of multiple high resolution images. The feature points of the image are extracted by Harris corner detection operator, and the SIFT descriptor is used to process the feature points, which makes it rotation-invariant. Based on the principle of shortest path and minimum error in graph theory, the reference image is selected. The geometric error median of the matching feature and the average approximation of the matching feature point are taken as the weights of the edge for image registration. Finally, the weighted average fusion method is used for seamless smoothing of multiple images. The experimental results show that the proposed method is efficient and can effectively eliminate the stitching trace and maintain high resolution.

Key words： Multiple images; high resolution; seamless stitching; A-KAZE feature

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