

光电信息获取与处理

一种基于特征点跟踪的电子稳像算法

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摘要:

提出一种基于特征点跟踪的稳像算法。该算法从参考帧图像中提取出一组特征点, 然后在后续帧中进行基于Kalman滤波的特征点的跟踪, 匹配参考帧图像中特征点的坐标和当前图像中基于Kalman滤波修正后得到的特征点的坐标, 并通过仿射模型求出位移量及旋转参数, 最后进行反向变换, 从而得到稳定的视频图像。实验结果表明: 该算法稳像效果好, 运算复杂度低, 且具有较强的鲁棒性。

关键词: 电子稳像 特征提取 Kalman滤波 运动补偿 仿射模型

Electronic image stabilization algorithm based on characteristic point tracking

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Abstract:

An image stabilization algorithm based on characteristic point tracking is presented, which abstracts a group of characteristic points from the reference images, tracks the characteristic points based on Kalman filtering in the follow-up images, and then matches coordinates of the characteristic points in current images and reference images. The parameters of displacement and rotation are derived by the affine model, the matrix of images is converted reversely and the stable video images are obtained. The result from experiment indicates that the algorithm which is easy to operate and has great ability to resist any disturbance can get good effect of stabilization.

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