

论文

基于灰度投影法运动估计的成像CCD平移补偿法

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摘要:

为了提高成像质量,得到高分辨率的图像,通过对灰度投影法进行分析,提出一种基于灰度投影法运动估计的成像 CCD 平移补偿法,给出其系统结构图。该方法采取只平移成像 CCD, 探测 CCD 固定,即在成像 CCD 补偿位移量的过程中,探测 CCD 不补偿位移,探测 CCD 在成像开始的第一帧为全局参考帧,其他帧与之比较来获得位移量。验证了分辨率标板在各种运动情况下系统的补偿效果,对拍摄的实物图像进行恢复,结果证明:该补偿法对慢速运动图像和随机振动图像具有较高的恢复能力。

关键词: 灰度投影算法;成像 CCD 平移补偿法;图像评价;微位移平台

Imaging CCD translation compensation method based on movement estimation of gradation projection technology

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Abstract:

After the gray projection analysis, an imaging CCD translation compensation method based on the movement estimation of gradation projection technology is proposed to improve the imaging quality and obtain the high resolution image. The system structure is presented. The system compensation effect of the resolution sign board moving in every status was verified. The restoration of a life-sized image was performed. The result shows that the compensation method has high restorability to the slow moving images and random vibration images. The overall performance of the system was greatly enhanced, and the imaging resolution was greatly improved.

Keywords: gray projection algorithm; imaging CCD translation compensation method; image quality evaluation; micro-displacement platform

收稿日期 修回日期 网络版发布日期

DOI:

基金项目:

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