

图形、图像、模式识别

图像平滑算子对边缘检测精度的影响

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摘要 图像平滑算子的性能会直接影响到边缘检测的精度,并最终影响到边缘定位的精度,从而影响CCD摄像机的标定精度,所以通过实验对图像平滑算子和边缘检测算子进行了性能比较,可以看出中值滤波算子在保持良好的去噪性能基础上,与均值滤波相比能够很好地保持图像的边缘等细节,与图像间平均滤波相比能够节约时间、提高效率。与Canny算子相比,Sobel算子不但能够准确地检测出目标的边缘,而且具有很强的抗噪性,在检测直线边缘方面具有很强的优势,更加适合应用的需要。

关键词 [图像平滑](#) [边缘检测](#) [边缘定位](#) [精度](#) [算子](#)

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Precision of edge detection affected by smoothing operator of image

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Abstract

Capability of smoothing operator of image directly impacts the precision of edge detection and edge orientation finally. So precision of calibration of CCD camera will be effected. Capability of smoothing operator of image and edge detection operator is compared through experiment. Compared with mean filter, medial filter operator protects details of image edges well under the conditions of good capability protected of wiping off noise. Compared with even filter, medial filter operator can save time and improve efficiency. Compared with Canny operator, Sobel operator not only detects edges of objects exactly but also has the capability of resisting noise strongly. On the side of detecting edge of line, Sobel operator has many advantages and it meets the need of application.

Key words [image smooth](#) [edge detection](#) [edge orientation](#) [precision](#) [operator](#)

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