传感技术学报
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一种快速响应码的图像二值化方法

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摘　要：

采集到的QR码图像首先需要转换为二值图像然后译码识别，但是在使用摄像头采集QR码图像中存在光照不均和反光等现象，经过全局二值化处理后会有全白或全黑的区域，而经过局部二值化处理会有“伪边界”，并且计算量大导致耗时长。本文提出一种联合阈值二值化方法，首先对QR码图像采用全局二值化方法，然后利用QR码图像特征找到光照不均或反光的区域，并对该区域采用一种嵌套式的局部二值化方法，这种方法提高了准确率，减少了计算时间并且防止“伪边界”的产生。将最后结果和几种常用的二值化算法比较，实验结果表明：使用该方法可以明显提高QR码识别的效率和准确率。

关键词：二维条码；QR码；二值化；阈值；图像预处理

A Binarization Method of Quick Response Code Image

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Abstract:

The collected QR code image firstly need to convert the binary image and then to locate and identify. Uneven illumination and reflections is inevitable in QR code image’s capturing. The image will have all white or all black area after the global binarization processing.The image will have a "pseudo-boundary" through the local binarization processing, and consuming time is large. In this parper, a joint threshold binarization method is proposed,firstly the global binarization is prorosed in QR code image, and then find the uneven illumination area,throug using QR code image’s characteristics.A nested local binarization method is adopted in the area to prevent the "pseudo-boundary" generation. The experimental results show the decoding efficiency and accuracy have been greatly improved when the joint threshold binarization method is adopted in the QR code image preprocessing.

Keywords: Two-dimensional bar code; Quick response code; Binarization; Threshold; Image preprocessing

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