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光电信息获取与处理

QR码图像预处理中的滤波研究

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摘要：

QR码图像采集过程中会出现椒盐噪声，为了在滤除图像椒盐噪声的同时能很好地保持图像的细节，将几种常用中值滤波方法应用到QR码的图像预处理中，进一步对其结果进行比较，得出QR码图像中值滤波的规律。据此提出利用窗口系数的新中值滤波方法，先二值化，然后进行基于滤波窗系数的中值滤波处理，经过实验比较找到一组系数。实验结果表明：将该系数的中值滤波用在QR码图像预处理中可以大大提高译码的效率和准确率。在加噪一定情况下，实验的识别率达到了100%。

关键词： 二维码 QR码 中值滤波 滤波窗系数 图像预处理

Filtering for QR code image pre processing

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Abstract:

Salt and pepper noise often appears in the acquisition of QR code image. In order to reduce salt and pepper noise as well as maintain image details, median filtering is fequently used in two-dimensional code image pre-processing. However, the typical median filtering algorithm requires a lot of time. Several median filtering methods were applied to the QR code image preprocessing, then the results were compared and QR code image median filtering rules were obtained, the new median filtering method was proposed, which used the window coefficients. Binarization is the first step, then the binary image is processed by median filtering based on filtering window coefficients, and a group of data is obtained through the experimental comparison. The experimental results show the decoding efficiency and accuracy are greatly improved when this coefficients' median fitering is adopted in the QR code image preprocessing.

Keywords: two-dimensional code quick response code median filtering filtering window coefficient image pre-processing

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