

基于区域灰度变化的自适应 FAST 角点检测算法

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摘 要: 针对当前 FAST 角点检测算法只能检测单一类型的角点, 并且单一阈值作用于整幅图像很难取得理想的效果等问题, 本文提出了一种基于区域灰度变化的自适应 FAST 角点检测算法. 该算法首先对图像进行高斯滤波; 其次, 依据灰度差筛选出角点候选点; 再引入自适应阈值, 根据灰度值的大小对候选点进行分类; 最后, 根据分类结果, 使用不同的检测模板对候选点进行再次筛选, 获得最佳匹配角点. 仿真结果表明该改进算法不仅可以提取出更多的有效角点, 较好的克服阈值选择不当造成的角点丢失或冗余, 而且对于噪声具有良好的鲁棒性.

关键词: FAST 算法; 角点检测; 灰度变化; 自适应阈值

Adaptive FAST Corner Detection Algorithm Based on Regional Grayscale Change

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Abstract: According to the FAST corner detection algorithm applies only on a single type of corner and a single threshold is not suitable to the whole image, an adaptive FAST corner detection algorithm based on regional grayscale change is proposed. In this algorithm, Gauss filtering of images; then based on gray difference selected corner candidate; Besides, by introducing an adaptive threshold, candidate corners are classified according to adaptive gray level threshold. Finally, the best match corners are selected by using different templates in accordance with the classification results. Experimental results show that: the proposed improved algorithm can not only effectively overcome the threshold selection inappropriate resulting in loss and redundancy some corners, extract more efficient corners, but also has good robustness to noise.

Key words: FAST algorithm; corner detection; grayscale change; adaptive threshold

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