论文与报告

一种基于贪心搜索的实时多目标遮挡处理算法

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摘要
提出了一种固定摄像机遮挡条件下的多目标跟踪算法,包括基于区域相关的运动前景分割、基于合并--分裂检测的数据关联和基于贪心搜索的遮挡目标定位三部分. 该算法的主要特点表现在: 1)将遮挡条件下的目标跟踪问题转化为一个已知目标数量和特征的图像分类问题; 2)用贪心搜索和积分图法快速定位遮挡中的目标,保证了算法的实时性; 3)对目标数量无约束,能够处理多目标相互遮挡下的跟踪问题(发生遮挡的目标数量大于等于2), 且对目标的遮挡程度和目标运动模式无约束,具有良好的可扩展性. 采用手工标定的IBM多人遮挡数据库的测试结果证明了算法的有效性.

关键词   多目标检测与跟踪   遮挡处理   贪心搜索   智能视频监控
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A Greedy Searching Algorithm for Multiple Object Tracking and Occlusion Handling

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Abstract
This paper presents a novel real-time multiple object tracking algorithm, which contains three parts: region correlation based foreground segmentation, merging-splitting based data association and greedy searching based occluded object localization. The main characteristics of the proposed algorithm are summarized as follows: 1) the multiple object tracking and occlusion handling problem is successfully changed into an image classification problem with prior knowledge of object number and feature; 2) a highly efficient greedy searching method is presented to meet real-time capability; 3) it has good performance in expansibility, and it has no constraints about the number of occluded objects, the occlusion ratio and the object's motion model. Experiment results with hand labeled IBM database demonstrate that the method is effective and efficient.
Key words   Multiple object detection and tracking   occlusion handling   greedy searching   intelligent video surveillance

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