

软件、算法与仿真

基于特征完整描述的部分遮挡目标识别算法

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摘要:

有效的轮廓分段对于准确识别遮挡目标是十分重要的。针对现有识别算法存在轮廓划分不合理的问题, 提出了基于特征完整描述的部分遮挡目标识别算法。首先利用局部轮廓曲率分布划分目标轮廓, 接着对初步轮廓分段进行多级分段合并处理。为了完整描述目标特征, 提出了评价轮廓分段所描述特征重要程度的参数, 得到一组完整描述多级目标特征的轮廓特征分段。同时, 为了减少轮廓分段误匹配造成的分类错误, 还提出了评价轮廓特征分段反映其真实目标可信度的参数。最后将可信度与轮廓特征分段之间的相似度联合起来共同得到识别结果。仿真结果表明, 该算法能够完整描述目标特征从而提高了目标识别准确率。

关键词: 遮挡目标识别 相似匹配 特征完整描述 轮廓分段 多级分段合并

Partially occluded object recognition algorithm based on feature description integrity

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Abstract:

Effective contour fragments are valuable for accurately recognizing the occluded object. To solve the improper contour fragments obtained by the existing recognition algorithms, a partially occluded object recognition algorithm based on feature description integrity is proposed. Firstly, the preliminary contour fragments are obtained through the local curvature distribution. Then, a multi level fragment merging operation is carried out on those preliminary contour fragments. To ensure the feature description integrity, an evaluation of the importance degree of each contour fragment is performed. And a set of contour feature fragment (CFC), representing completely object features at various levels, is obtained. Then an evaluating function of reliability, which reflects the relationship between CFC and its corresponding object, is introduced to decrease the mismatch error between CFCs. Finally, the similarity of different CFCs, in combination with their reliability, is jointly used to get the best recognized result. Simulation verifies that this algorithm describes completely the feature and increases effectively the recognition accuracy.

Keywords: occluded object recognition similarity matching feature description integrity contour fragment multi level fragment merging

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