

论文

基于自适应非参数统计模型的彩色目标跟踪算法研究

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摘要:

针对复杂环境条件下的视觉跟踪问题,提出一种基于自适应非参数统计模型的彩色目标跟踪算法。利用目标和背景之间的强度差别,基于自适应核密度估计模型对运动目标进行了非参数统计建模。为了实现具有较大范围运动目标的跟踪,在充分考虑目标和背景之间的相关性前提下,采用目标特征统计的背景加权直方图对搜索区域进行了扩大。为了提高对环境变化的适应能力,根据目标和环境的变化自适应更新目标特征分布模型。通过对实际图像序列的实验,结果表明该算法能够有效跟踪运动目标,并且平均迭代次数比传统方法减少了37.28%。

关键词: 视觉跟踪;非参数统计模型;彩色目标

Visual tracking algorithm for colour objects based on adaptive nonparametric statistical model

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Abstract:

To realize the visual tracking under the complicated condition, an efficient color object tracking algorithm based on the adaptive is presented in this paper. Based on an adaptive kernel model, the nonparametric statistical modeling of a moving target was carried out with the intensity difference between the target and the background. The search region is extended for searching objects with the background-weighted histogram for statistics of the target feature on the premise of taking the relevance between the target and background into account in order to realize the tracking of the moving gargets in a large area. According to the change of the object and environment, the target model is updated to improve the adaptive ability for environment variation of object tracking. Experimental results on real image sequences show that the algorithm can efficiently track the moving gargets, and the average iteration number reduces 37.28% in comparison with other method.

Keywords: visual tracking; nonparametric statistical model; colour object

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