论文

基于MRF的复杂背景下缓动目标分割方法

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摘要：

提出了一种基于MRF的复杂背景下缓目标分割方法。该方法采用基于逆向光流场的背景抑制技术和基于加权直方图的灰度场建模方法。前者对相邻视频图像进行逆向光流变换使得两帧图像中的目标投影对齐，进而对两帧图像进行差分运算并设定阈值分离目标和背景，得到了较为完整的缓动目标初始分割；后者对初始标号场各像素分配信任度，进而统计信任度并建立加权灰度直方图，而后依据加权直方图建立了准确的图像灰度模型。在此基础上，在MAP-MRF框架内对视频图像进行分割。进行仿真实验并采用空间准确度和时间一致性标准评价实验结果，证明算法具有有效性和鲁棒性。

关键词： 图像分割　光流场　加权直方图　信任度

A Slow-Moving-Object Segmentation Technology Based on MRF Under Complex Background

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Abstract:

A slow-moving-object segmentation technology based on MRF under complex background is proposed in this paper which adopts the technology of background suppression based on inverted optical flow field and the plan of gray field modeling based on weighted histogram. The technology of background suppression firstly conducts inverted optical flow transformation on adjacent frame to align object projections， then segments the object from the background by a given threshold value based on the adjacent frame difference to obtain coarse segmentation of the images; The plan of gray field modeling firstly distributes trust degree to pixels of the coarse segmentation image， then establishes weighted histogram adopting the statistics of trust degrees， and finally build exact gray field modeling based on the weighted histogram. Based on these， video images are segmented under the MAP-MRF framework. Experiments are dong and the results are evaluated by the criterias of spatial accuracy and temporal coherency which shows that these metods are valid and robust.

Keywords: Image Segmentation　Optical Flow Field　Weighted Histogram　Trust Degree

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