论文

无人机编队视频序列中的多目标精确跟踪

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摘要：

针对无人机编队视频序列中的多目标精确跟踪的要求,使用STK三维建模软件模拟无人机编队飞行视频,通过双差分图像操作、多分辨率连通分支标记算法确定图像中的运动区域.提出了一种改进的贪婪算法,利用已确定的矩形运动区域作为初始轮廓,实现对无人机目标的精确轮廓提取.以运动区域的中心位置为输入,建立在线卡尔曼滤波器组对多目标进行跟踪,并由此提出了如何对多目标中的遮挡问题进行判定、分割的方法.仿真实验验证了文中提出的方法.

关键词： 无人机编队 贪婪算法 轮廓提取 多目标跟踪 目标遮挡

Multiple targets accurate tracking on UAV formation video sequences

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Abstract:

Aiming to meet the requirements of multiple targets accurate tracking of UAV formation video sequences, STK-3D modeling software was utilized to simulate the UAV formation flight video and capture the moving regions by means of double difference operator and multi-resolution connectedness label operator on the simulation video. By using the rectangular moving regions as an initial contour, an improved greedy algorithm was proposed to realize the accurate contour drawing of the UAV targets. The center position of the moving regions being an input variable, the on line Kalman filter group were established to track each target in the video. Consequently, the way was discussed on how to determine and segment the objects when occlusions occur. The simulation results show the efficiency.

Keywords: UAV formation greedy algorithm contour drawing multiple targets tracking object occlusion

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