

基于 Kalman 滤波器和改进 Camshift 算法的双眼跟踪

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摘 要： 针对目前的人眼跟踪方法对人脸尺度变化、人眼部分遮挡和头部旋转等情况过于敏感，经常因丢失目标而导致跟踪失败，提出一种综合运用 Kalman 滤波器和改进 Camshift 算法的双眼跟踪方法，该方法首先运用 Kalman 滤波器预测双眼在当前帧图像中的位置；其次以该位置为中心运用改进 Camshift 迭代算法搜索双眼目标；再利用双眼分布的对称性校正搜索到的双眼窗口；最后更新 Kalman 滤波器和人眼模板.实验证明该方法对上述情况具有较强的鲁棒性.

关键词： 人眼检测；Kalman 滤波；改进 Camshift 算法；双眼跟踪

Eyes Tracking Method Based on Kalman Filter

and Camshift Algorithm

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Abstract: In view of the current eye tracking methods were too sensitive to conditions that face scale variations, partial occlusion of eye and head rotations in horizontality and verticality, which often resulted in tracking failure for the loss of objects. One eyes tracking method was proposed that was based on Kalman filter and improved Camshift algorithm. Firstly, predict the position of the eyes in the current image by Kalman filter; secondly, search the eyes region by Camshift iteration algorithm at the center of predicted position; thirdly, adjust the search window in the light of the symmetry of the of eyes; finally, update Kalman filter and the eyes templates. The experimental results show this method is robustness to those proposed conditions.

Key words: Eye detection; Kalman filter; Improved Camshift algorithm; Eyes tracking

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