



华东师范大学学报(自然科学版) » 2012, Vol. 2012 » Issue (3): 103-110 DOI:

电子科学与计算机科学

最新目录 | 下期目录 | 过刊浏览 | 高级检索

◀◀ Previous Articles | Next Articles ▶▶

基于椭圆拟合的近红外图像的眼睛精确定位法

金俊才, 童卫青, 梁晓妮, 陈强, 梅月平, 刘丹

华东师范大学 计算机科学与技术系, 上海 200241

Accurate eye location in near-infrared images based on ellipse fitting

JIN Jun-cai, TONG Wei-qing, LIANG Xiao-ni, CHEN Qiang, MEI Yue-ping, LIU Dan

Department of Computer Science and Technology, East China Normal University, Shanghai 200241, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (3011 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要 提出了一种新的近红外人脸图像的眼睛精确定位方法. 该方法首先使用基于Haar特征和AdaBoost算法的人脸检测分类器确定人脸区域和初始眼睛位置; 然后用Sobel算子对眼睛区域进行边缘检测处理, 得到眼睛边缘, 并对它进行椭圆拟合获得眼睛的椭圆轮廓线; 最后把拟合椭圆的中心点作为眼睛的精确定位. 实验表明, 在正面人脸情况下, 本方法能精确地定位近红外人脸图像的眼睛位置, 在归一化人脸为120×120像素时, 其平均误差小于1.5个像素, 处理时间约7 ms.

关键词: 人脸检测 眼睛定位 近红外图像 AdaBoost算法 椭圆拟合

Abstract: This paper presents a novel approach to precisely locate eye position in near-infrared facial images. In this approach, we first determine the face region and initial eye position using face detection classifier based on Haar features and AdaBoost algorithm. Then we detect the eye edge in the eye region using Sobel operator, fit it into an elliptical contour. Finally, the center point of eye is located by the center of the fitted ellipse. With 120×120 normalized face images, the experiments show that the proposed approach is accurate. The average error is less than 1.5 pixels and the processing time is about 7 ms.

Key words: face detection eye location NIR image AdaBoost ellipse fitting

收稿日期: 2011-08-01; 出版日期: 2012-05-25

引用本文:

. 基于椭圆拟合的近红外图像的眼睛精确定位法[J]. 华东师范大学学报(自然科学版), 2012, 2012(3): 103-110.

. Accurate eye location in near-infrared images based on ellipse fitting[J]. Journal of East China Normal University(Natural Sc, 2012, 2012(3): 103-110

[1] VIOLA P, JONES M. Robust Real-Time Face Detection[J]. International Journal of Computer Vision, 2004,57: 137-154.

[2] FITZGIBBON A W, PILU M, FISHER R B. Direct least squares fitting of ellipses[J]. IEEE Transactions on Pattern Analysis and Machine Intelligence, 1999, 21: 476-480.

[3] 丘维声. 解析几何[M]. 北京: 北京大学出版社, 1999: 149-160.

[1] 王基帆;童卫青. 基于数理形态学的近红外光图像实时人脸检测[J]. 华东师范大学学报(自然科学版), 2010, 2010(3): 39-47.

服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

作者相关文章