论文

最新目录　|　下期目录　|　过刊浏览　|　高级检索   << Previous Articles | Next Articles >>

基于Contourlet子带能量特征多HMM融合的静脉识别

贾旭*　薛定宇　崔建江　刘晶*

东北大学信息科学与工程学院 沈阳 110819

Vein Recognition Based on Fusing Multi HMMs with Contourlet Subband Energy Observations

Jia Xu　Xue Ding-yu　Cui Jian-jiang　Liu Jing*

School of Information Science & Engineering, Northeastern University, Shenyang 110819, China

摘要　|　**参考文献**　|　**相关文章**

Download: PDF (492KB)　　HTML 1KB　Export: BibTeX or EndNote (RIS)　　Supporting Info

摘要 为了准确识别人的身份，该文提出了一种以轮廓波(Contourlet)变换后不同尺度下的子带能量为特征，建立并融合多个隐马尔科夫模型(HMM)的手背静脉识别算法。该算法首先采用了光强可调的近红外阵列光源，通过逐步增加光强来获得手背静脉图像序列；而后，将每一静脉图像进行Contourlet变换，并计算不同尺度下每一子带的能量，以3个尺度下子带能量作为特征观测值建立3个HMM；最后，融合3个HMM计算得到的观测值发生概率，将融合结果与阈值作比较，从而完成静脉识别过程。实验结果表明，提出的算法可以使真实匹配与虚假匹配的区分度最大化，与基于特征点或静脉信息融合的识别算法相比，正确识别率得到了提高。

关键词:　特征提取　静脉识别　轮廓波变换　隐马尔科夫模型(HMM)

Abstract：　In order to recognize one's identity accurately, a dorsal hand vein recognition algorithm based on establishing and fusing multi Hidden Markov Models (HMMs) is proposed in the paper, where multi-scale subband energies are used as the features of HMMs after the vein images are processed by Contourlet transform. In the proposed algorithm near infrared light source array whose light intensity can be adjustable is applied, and the dorsal hand vein image sequence is acquired through increasing the light intensity gradually. Then every vein image is processed by Contourlet transform, subband energies under three scales are computed and used as the features of three HMMs. Finally, the probabilities of three HMMs generating observable symbol sequences are calculated and fused, and the result of fusion is compared to threshold, then the vein recognition process is completed. Experiments show that the proposed algorithm can make the discrimination between true and false matching maximum, and comparing with the recognition algorithms based on feature points or vein information fusion, the correct recognition rate is improved.

Keywords：　Feature extraction　Vein recognition　Contourlet transform　Hidden Markov Model (HMM)

Service

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

作者相关文章

▶ 贾旭
▶ 薛定宇
▶ 崔建江
▶ 刘晶

引用本文:

贾旭, 薛定宇, 崔建江, 刘晶.基于Contourlet子带能量特征多HMM融合的静脉识别[J] 电子与信息学报, 2011,V33(8): 1877-1882

Jia Xu, Xue Ding-Yu, Cui Jian-Jiang, Liu Jing.Vein Recognition Based on Fusing Multi HMMs with Contourlet Subband Energy Observations[J] , 2011,V33(8): 1877-1882

链接本文:

http://jeit.ie.ac.cn/CN/10.3724/SP.J.1146.2010.01253   或   http://jeit.ie.ac.cn/CN/Y2011/V33/I8/1877