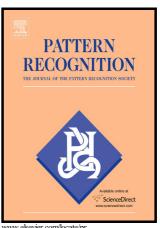
Author's Accepted Manuscript

Improving texture analysis performance in biometrics by adjusting image sharpness

Kunai Zhang, Da Huang, Bob Zhang, David Zhang



www.elsevier.com/locate/pr

PII: S0031-3203(16)30381-8

http://dx.doi.org/10.1016/j.patcog.2016.11.025 DOI:

PR5968 Reference:

To appear in: Pattern Recognition

Received date: 16 July 2016 Revised date: 23 October 2016 Accepted date: 28 November 2016

Cite this article as: Kunai Zhang, Da Huang, Bob Zhang and David Zhang Improving texture analysis performance in biometrics by adjusting imag sharpness, *Pattern Recognition*, http://dx.doi.org/10.1016/j.patcog.2016.11.025

This is a PDF file of an unedited manuscript that has been accepted fo publication. As a service to our customers we are providing this early version o the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

ACCEPTED MANUSCRIPT

Improving texture analysis performance in biometrics by adjusting image sharpness

Kunai Zhang^a, Da Huang^b, Bob Zhang^c, David Zhang^{a,*}

^aBiometrics Research Centre, Department of Computing, The Hong Kong Polytechnic University, Hong Kong, China

^bDepartment of Automation, Tsinghua University, Beijing, China ^cDepartment of Computer and Information Science, University of Macau, Macau, China

Abstract

In this paper, a method to improve texture analysis performance in biometrics by adjusting image sharpness is presented. Images of high sharpness are usually considered as high quality data in texture analysis. Therefore, the imaging sensor and lens are carefully selected and calibrated in an image acquisition system in order to capture clear images. However, the results of our experiments show that the performance of texture analysis in biometrics can be improved by filtering clear images to lower sharpness. The experiments were conducted on the PolyU Palmprint Database using two algorithms (CompCode and POC), as well as on the CASIA Iris Database using IrisCode. In this paper, a filtering method using Gaussian filters is adopted to the images during the pre-processing stage to adjust the image sharpness. Results indicate that there is an optimal range of image sharpness and if all the images are filtered to this range, the performance of texture analysis on the whole dataset will be optimized. A scheme is also proposed to find the optimal range and to filter an image to the optimal range.

Keywords: Image Sharpness, Image Filtering, Texture Analysis, Palmprint Recognition, Iris Recognition

Email address: csdzhang@comp.polyu.edu.hk (David Zhang)

^{*}Corresponding author

Download English Version:

https://daneshyari.com/en/article/4969699

Download Persian Version:

https://daneshyari.com/article/4969699

<u>Daneshyari.com</u>