Abstract

Iris recognition is a form of biometric technology that authenticates individuals by using the unique iris patterns between the pupil and the sclera. There are three factors: Defocus, Motion Blur, and Off-Angle to substantially degrade performance more than the other quality. The work described in this paper is interested in Motion Blur. The iris image will appear blurry which can reduce iris recognition accuracy. The focus of the article is to achieve a quality edge preserving image restoration using Total Variation (TV)-L1 regularization technique. L1 norm based approaches do not penalize edges or high frequency contents in the restored image. Experimental results showed that the iris recognition accuracy was better than that when using deblurring algorithms. This article presents two contributions over previous research. (1) A new application to deblurring iris image using fast TV-L1 deconvolution model is proposed. (2)
Previous research restored coexisting motion blurred images in terms of visibility, but

References

Application of Blind Deblurring Algorithm for Iris Biometric

- L. Ma, T. Tan, Y. Wang, and D. Zhang, "Local intensity variation analysis for iris recognition", Pattern Recognition, volume 37(6), 2004, pp. 1287-1298.
- N. D. Kalka, V. Dorairaj, Y. N. Shah, N. A. Schmid, B. Cukic, "Image Quality Assessment for Iris Biometric", Lane Department of Computer Science and Electrical Engineering West Virginia University, Morgantown, WV-26506, USA.
- CASIA Iris Image Database (ver. 1.0), http://www.sinobiometrics.com/casiairis.html.
Index Terms

Computer Science

Security

Keywords

Iris Biometric  Motion blur  Deconvolution.