

## Documents

Khalifa, O.O., Kashi, M.K., Aisha Hassan, A.H.

**A hybrid Face Recognition Technique as an Anti-Theft Mechanism**  
(2021) *Journal of Physics: Conference Series*, 1793 (1), art. no. 012052, .

**DOI:** 10.1088/1742-6596/1793/1/012052

Electrical and Computer Engineering, Faculty of Engineering, International Islamic University Malaysia, Malaysia

**Abstract**

This paper proposes an anti-theft mechanism uses biometric Face Recognition to identify thief along with alarming. This can be used as security for ATMs, airport's systems, medical records, identify customers, preventing fraud and providing VIP services as well as recognizing individuals with known shoplifting convictions and video surveillance. The proposed system based on Viola Jones algorithm, Wavelet transform and Principal Component Analysis. Experimental results are given to demonstrate the viability of the proposed face recognition system with achieved efficiency is 82%. © Published under licence by IOP Publishing Ltd.

**Index Keywords**

Airport security, Security systems, Wavelet transforms; Face recognition systems, Face recognition technique, Medical record, Video surveillance, Viola - Jones algorithms; Face recognition

**References**

- Yugang, J, Ping, G  
**Face Recognition by Combining Wavelet Transform and k-Nearest Neighbor**  
(2005) *Journal of Communication and Computer*, 2, pp. 50-53.
- Haiyang, Z  
(2011) *Image Preprocessing Methods in Face Recognition 2011 Symposium on Photonics and Optoelectronics*, pp. 16-18.
- Samadani, R, Sundararajan, A, Said, A  
**Deringing and deblocking DCT compression artifacts with efficient shifted transforms**  
(2004) *Proceedings of International Conference on Image Processing*, 3, pp. 1799-1802.
- Adini, Y M  
**Face Recognition: the Problem of Compensating for Changes in Illumination Direction**  
(1997) *IEEE Trans. on Pattern Analysis and Machine Intelligence*, pp. 721-732.

- Finlayson, G D, Schiele, B, Crowley, J  
**Computer Vision-ECCV'98**  
(1998) *ECCV 1998. Lecture Notes in Computer Science 1406 ed H Burkhardt and B Neumann*,  
(Springer, Berlin, Heidelberg) Comprehensive colour image normalization
- Govindaraju, V, Srihari, S N, Sher, D B  
(1990) *A computational Model for Face Location Proceedings Third International Conference on Computer Vision*,
- Waters, K, Terzopoulos, D  
**Modeling and animating Faces using scanned data**  
(1991) *Journal of Visualization Computer Animation*, 2, pp. 123-123.
- Karimi, B, Krzyzak, A  
**A Study on Significance of Color in Face Recognition using Several Eigenface**  
(2007) *Algorithms Canadian Conference on Electrical and Computer Engineering*,
- Yuille, A I, Cohen, D S, Hallinan, P W  
(1989) *Feature extraction from faces using deformable templates in proceedings of CVPR*, pp. 104-109.
- Berger, M O, Mohr, R  
**Towards Autonomy In Active Contour Models**  
(1990) *Proceedings of the 10th ICPR (I)*, pp. 847-885.
- Kass, M, Witkin, A, Terzopoulos, D  
**Snakes: Active contour models**  
(1988) *International Journal of Computer Vision*, 1, pp. 321-331.
- Jacobs, I S, Bean, C P  
**Fine particles, thin films and exchange anisotropy**  
(1963) *Magnetism III*, pp. 271-350.  
ed G. T. Rado and H. Suhl (New York: Academic)
- Huang, Chung-Lin, Chen, Ching-Wen  
*Human Facial Feature Extraction for Face Interpretation and Recognition Institute of Electrical Engineering*,  
National Tsing Hua University
- Viola, P, Jones, M  
(2001) *Robust Real-time Object Detection*,  
(Cambridge)

- Malmurugan, N, Shanmugam, A, Jayaraman, S, Chander, V V  
(2005) *Academic Open Internet Journal*, 14.
- Jonathan, S  
(2009) *Center for Neural Science*,  
(New York University) A Tutorial on Principal Component Analysis April 22, 2009

**Correspondence Address**

Khalifa O.O.; Electrical and Computer Engineering, Malaysia; email: khalifa@iium.edu.my

**Editors:** Al Saggoff S.Z.S.I., Mustafa W.A.W., Jamlos M.A.

**Publisher:** IOP Publishing Ltd

**Conference name:** 1st International Recent Trends in Technology, Engineering and Computing Conference, IRTTEC 2020

**Conference date:** 30 September 2020

**Conference code:** 167781

**ISSN:** 17426588

**Language of Original Document:** English

**Abbreviated Source Title:** J. Phys. Conf. Ser.

2-s2.0-85103101258

**Document Type:** Conference Paper

**Publication Stage:** Final

**Source:** Scopus

---

**ELSEVIER**

Copyright © 2021 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

