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- [11] Galbally J, Marcel S, Fierrez J. Image Quality Assessment for Fake Biometric Detection: Application to Iris, Fingerprint, and Face Recognition. *IEEE Trans Image Process*. 2014;23(2):710-724. doi:10.1109/TIP.2013.2292332.
- [12] Gandomi AH, Yang X-S, Alavi AH. Cuckoo search algorithm: a metaheuristic approach to solve structural optimization problems. *Eng Comput*. 2013;29(1):17-35. doi:10.1007/s00366-011-0241-y.
- [13] Ganguly S, Bhattacharjee D, Nasipuri M. Hybridization of 2D-3D Images for Human Face Recognition. In: *Hybrid Soft Computing Approaches*. Europe; 2016:387-403. doi:10.1007/978-81-322-2544-7\_13.
- [14] Gawande U, Zaveri M, Kapur A. Fingerprint and Iris Fusion Based Recognition Using RBF Neural Network. *J Signal Image Process*. 2013;4(1):142-148.
- [15] Ghoulami L, Draa A, Chikhi S. An ear biometric system based on artificial bees and the scale invariant feature transform. *Expert Syst Appl*. 2016;57:49-61. doi:10.1016/j.eswa.2016.03.004.
- [16] Ghouti L, Bahjat AA. Iris fusion for multibiometric systems. In: *2009 IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*. IEEE; 2009:248-253. doi:10.1109/ISSPIT.2009.5407577.
- [17] Goyal N. Multi-Biometric Recognition for Iris and Ear Images by using ICA, GA, Hamming Distance. *J Netw Commun Emerg Technol*. 2015;2(1):58-63. <http://www.jncet.org/Manuscripts/Volume-2/Issue-1/Vol-2-issue-1-M-11.pdf>.
- [18] Ito K, Aoki T, Nakajima H, Kobayashi K, Higuchi T. A Palmprint Recognition Algorithm using Phase-Based Image Matching. In: *2006 International Conference on Image Processing*. IEEE; 2006:2669-2672. doi:10.1109/ICIP.2006.313059
- [19] Jagadeesan A, Thillaikarasi T, Duraiswamy K. Protected bio-cryptography key invention from multimodal modalities: Feature level fusion of fingerprint and Iris. *Eur J Sci Res*. 2011;49(4):484-502.
- [20] Jain AK, Ross A, Pankanti S. Biometrics: A Tool for Information Security. *IEEE Trans Inf Forensics Secur*. 2006;1(2):125-143. doi:10.1109/TIFS.2006.873653.
- [21] Jain AK, Ross A, Prabhakar S. An Introduction to Biometric Recognition. *IEEE Trans Circuits Syst Video Technol*. 2004;14(1):4-20. doi:10.1109/TCSVT.2003.818349.
- [22] Jiwnani G, Nisheeth S. Multi-modal Biometric Authentication using Fingerprint and Iris: a Review. *Int J Comput Sci Commun Networks*. 2011;5(2):115-119. <http://www.ijcsn.com/Documents/Volumes/vol5issue2/ijcsn2015050215.pdf>.
- [23] Kundu S, Sarker G. An Efficient Integrator based on Template Matching Technique for Person Authentication using Different Biometrics. *Indian J Sci Technol*. 2016;9(42):1-9. doi:10.17485/ijst/2016/v9i42/93805.
- [24] Kurban OC, Yildirim T, Bilgic A. A multi-biometric recognition system based on deep features of face and gesture energy image. In: *2017 IEEE International Conference on INnovations in Intelligent SysTems and Applications (INISTA)*. IEEE; 2017:361-364. doi:10.1109/INISTA.2017.8001186.
- [25] Mahfouz A, Mahmoud TM, Eldin AS. A survey on behavioral biometric authentication on smartphones. *J Inf Secur Appl*. 2017;37:28-37. doi:10.1016/j.jisa.2017.10.002.
- [26] Marak P, Hambalik A. Fingerprint Recognition System Using Artificial Neural Network as Feature Extractor: Design and Performance evaluation. *Tatra Mt Math Publ*. 2016;67(1):117-134. doi:10.1515/tmmp-2016-0035.
- [27] Nandakumar K, Yi Chen, Dass SC, Jain AK. Likelihood Ratio-Based Biometric Score Fusion. *IEEE Trans Pattern Anal Mach Intell*. 2008;30(2):342-347. doi:10.1109/TPAMI.2007.70796.
- [28] Omran SS. Design and Implementation of Multi-Model Biometric Identification System. *Int J Comput Appl*. 2014;99(15):14-21. <https://pdfs.semanticscholar.org/17c5/25ed8851efebc8db4136c150f79906db4a5d.pdf>.
- [29] Ross AA, Nandakumar K, Jain AK. *Handbook of Multibiometrics*. 1st ed. Germany: Springer; 2006.
- [30] Shah PM. Face Detection from Images Using Support Vector Machine. 2012. [http://scholarworks.sjsu.edu/cgi/viewcontent.cgi?article=1322&context=etd\\_projects](http://scholarworks.sjsu.edu/cgi/viewcontent.cgi?article=1322&context=etd_projects).
- [31] Sinha A, Chakravarty K. Pose Based Person Identification Using Kinect. In: *2013 IEEE International Conference on Systems, Man, and Cybernetics*. IEEE; 2013:497-503. doi:10.1109/SMC.2013.91.
- [32] Baveja M. An Analysis of the US-VISIT biometric program. 2007. <http://sci-hub.tw/10.1109/ISSPIT.2009.5407577>.
- [33] Subbarayudu VC, Prasad MVNK. Multimodal Biometric System. In: *2008 First International Conference on Emerging Trends in Engineering and Technology*. IEEE; 2008:635-640. doi:10.1109/ICETET.2008.93.
- [34] Syafeeza AR, Khalil-Hani M, Liew SS, Bakhteri R. Convolutional neural network for face recognition with pose and illumination variation. *Int J Eng Technol*. 2014;6(1):44-57. doi:10.1109/icpr.2010.371.
- [35] Thasiyabi VA, Koshy R, Satheesh S. Biometric fusion: Combining multimodal and multi algorithmic approach. In: *2016 International Conference on Signal Processing, Communication, Power and Embedded System (SCOPUS)*. Paralakhemundi: IEEE; 2016:618-620. doi:10.1109/SCOPES.2016.7955513.
- [36] Unar JA, Seng WC, Abbasi A. A review of biometric technology along with trends and prospects. *Pattern Recognit*. 2014;47(8):2673-2688. doi:10.1016/j.patcog.2014.01.016.
- [37] Vasuhi S, Vaidehi V, Babu NTN, Treasa TM. An efficient multi-modal biometric person authentication system using Fuzzy Logic. In: *ICOAC 2010*. IEEE; 2010:74-81. doi:10.1109/ICOAC.2010.5725365.
- [38] Wang J, Li Y, Ao X, Wang C, Zhou J. Multi-modal biometric authentication fusing iris and palmprint based on GMM. In: *2009 IEEE/SP 15th Workshop on Statistical Signal Processing*. IEEE; 2009:349-352. doi:10.1109/SSP.2009.5278568
- [39] Wu J, Ishwar P, Konrad J. Silhouettes versus skeletons in gesture-based authentication with Kinect. In: *2014 11th IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS)*. IEEE; 2014:99-106. doi:10.1109/AVSS.2014.6918651.
- [40] Wu J, Konrad J, Ishwar P. Dynamic time warping for gesture-based user identification and authentication with Kinect. In: *2013 IEEE International Conference on Acoustics, Speech and Signal Processing*. IEEE; 2013:2371-2375. doi:10.1109/ICASSP.2013.6638079
- [41] Wu X, Zhang D, Wang K, Qi N. Fusion of Palmprint and Iris for Personal Authentication. In: *Advanced Data Mining and Applications*. Germany: Springer; 2007:466-475. doi:10.1007/978-3-540-73871-8\_43.
- [42] Yang X-S, Deb S. Cuckoo search: recent advances and applications. *Neural Comput Appl*. 2014;24(1):169-174. doi:10.1007/s00521-013-1367-1.
- [43] Zhang Y-M, Ma L, Bo Li. Face and ear fusion recognition based on multi-agent. In: *2008 International Conference on Machine Learning and Cybernetics*. IEEE; 2008:46-51. doi:10.1109/ICMLC.2008.4620376