ABSTRACT

With the rapid growth in multimedia contents, among such content face recognition has got much attention especially in the past few years. Face as an object consists of distinct features for detection; therefore, it remains the most challenging research area for scholars in the field of computer vision and image processing. This paper, addresses most endeavoring face features such as pose invariance, aging, illuminations and partial occlusion. They are considered to be indispensable factors in face recognition systems when realized over facial images. This paper also studies state of the art face detection techniques, approaches, viz. Artificial Neural Networks (ANN), Support Vector Machines (SVM), Principal Component Analysis (PCA), Independent Component Analysis (ICA), Elastic Bunch Graph Matching, 3D morphable Model and Hidden Markov Models. In addition to the aforementioned works, different testing face databases which include AT & T (ORL), AR, FERET, LFW, YTF, and Yale, respectively for results analysis. The aim of this paper is to provide comprehensive literature review over face recognition along with its applications.

ACKNOWLEDGEMENT

I am greatly indebted to Dr. Praveensal C J, Principal, SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY, Karukutty, Ernakulam and Dr. Varun G Menon, Head of Department, Department of Computer Science and Engineering, SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY, Karukutty, Ernakulam who whole heartedly granted me the permission to conduct this seminar.

I would like to thank my guide, Ms. Sonal Ayyapan, Associate Professor, Department of Computer Science and Engineering, SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY, Karukutty, Ernakulam who has given me valuable guidance and support throughout the seminar. Also, I would like to thank my seminar coordinator, Ms. Josna Philomina, Assistant Professor, Department of Computer Science and Engineering SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY, Karukutty, Ernakulam, who supported and instructed me all the way.

I would like to express my sincere gratitude to all the teachers of Computer Science Department who gave us moral and technical support. I would like to thank the supporting staff in the Computer lab whose dedicated work kept the lab working smoothly, thus enabling me to have access to various resources which helped me understand more about the seminar topic. I would also like to thank my friends and family members for providing me with necessary resources and support. Last but not the least; I would like to thank God Almighty for helping me to conduct the seminar hassle free.

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REFERENCES

[1]. Madan Lal, Kamlesh Kumar, Rafaqat Hussain Arain, Abdullah Maitlo, Sadaquat Ali Ruk and Hidayatullah Shaikh, “Study of Face Recognition Techniques: A Survey” International Journal of Advanced Computer Science and Applications(IJACSA), 9(6), 2018.http://dx.doi.org/10.14569/IJACSA.2018.090606.

[2]. Raja, A. S., and V. JosephRaj. "Neural network based supervised self-organizing maps for face recognition." International Journal on Soft Computing 3.3 (2012).

[3]. Nandini, M., P. Bhargavi, and G. Raja Sekhar. "Face Recognition Using Neural Networks." International Journal Of Scientific and Research Publications 3.3 (2013): 1. Conference on. Vol 1. IEEE, 2000.

[4]. Kong, Rui, and Bing Zhang. "A New Face Recognition Method Based on Fast Least Squares Support Vector Machine." Physics Procedia 22 (2011): 616-621.

[5]. Azeem, Aisha, et al. "A survey: face recognition techniques under partial occlusion." Int. Arab J. Inf. Technol 11.1 (2014): 1-10.

[6]. Huang, Fu Jie, et al. "Pose invariant face recognition." Automatic Face and Gesture Recognition, 2000. Proceedings. Fourth IEEE International Conference on. IEEE, 2000.

[7]. Zhang, Wuming, et al. "3D aided face recognition across pose variations."Biometric Recognition. Springer Berlin Heidelberg, 2012.58-66.

[8]. Wang, Jizeng, and Hongmei Yang. "Face on template matching and 2DPCA algorithm." Image and Signal Processing, 2008 CISP'08. Congress on. Vol. 4. IEEE, 2008.

[9]. Ms. Snehal Houshiram Gorde1, et al.‖ A Review on Face Recognition Algorithms Volume III, Issue I Issn No.:2350-1146, I.F-2.71.