Abstract

This paper presents a novel biologically inspired and wavelet based model for extracting features of faces from face images. The biological knowledge about the distribution of light receptors, cones and rods, over the surface of the retina, and the way they are associated with the nerve ends for pattern vision forms the basis for the design of this model. A combination of classical wavelet decomposition and wavelet packet decomposition is used for simulating the functional model of cones and rods in pattern vision. The paper also describes the experiments performed for face recognition using the features extracted on the AT&T face database containing 400 face images of 40 different individuals. In the recognition stage we used k-Nearest Neighbour classifier. A feature vector of size 40 is formed for face images of each person and recognition accuracy is computed using k-NN classifier.

References

Wavelet based Artificial Light Receptor – A feature extraction model for face recognition

- V. Kabeer & N K Narayanan, Wavelet based Artificial Light Receptor Model for Human Face Recognition, International Journal of Wavelets, Multiresolution and Information Processing (IJWMIP), World Scientific, No.5., 2009.

Index Terms

Computer Science
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Keywords

Face recognition Image analysis Wavelet feature extraction Pattern recognition k-NN Classifier