ABSTRACT

Face and facial expression recognition has been an attractive field of research for both neuroscientists and computer vision scientists. The automatic face recognition is the important one. In real world the faces to be identified may be in rotated form. So a unique approach for identifying upright and rotated faces is necessary. Neural networks in combination with affine transform can be effectively used for rotating the faces. Also neural network has the powerful capability of adaptation. The degree of rotation required is determined by the neural networks.

The optical signal has the characteristics of interconnection and parallelism. It can be processed and transferred through complex amplitude, full parallel high performance and massive interconnection. In view of the above advantages of neural networks and optical neural networks, face recognition and facial expression recognition using these approaches are proposed.

A neural network based Orientation network and Identifier network is implemented and experimentally analyzed for Rotation invariant face recognition along with affine transform and Karhunen-Loeve Transform.
Optical neural network based Orientation network and Identifier network is implemented and experimentally analyzed for Rotation invariant face recognition along with affine transform and Karhunen-Loeve Transform. The results are compared with the neural network based experiments and it is proved that optical neural network perform better than neural network.

The experiments are analyzed for facial expression recognition from cohn Kanade data base by using optical neural network and Karhunen Loeve transform. The optical neural network is trained with 1000 patterns and tested for 800 patterns and validated. The six facial expressions recognized are surprise, happiness, sadness, fear, anger and disgust. The results are compared with other approaches analyzed by Guoying (2007). The result shows the proposed approach outperforms the other dynamic and static methods.