Geometric and Texture Based Facial Expression Recognition

Amin Mohammadian [a] , Hassan Aghaeinia [a], Farzad Towhidkhah [a]

[a] *Amirkabir University of Technology, Tehran, Iran*

Combination of geometric and texture features are used to facial expression recognition. These features are compared with global features (Kernel-PCA of face image and original face image). In geometric features set, distances and angles between face components are proposed for emotion discrimination. In order to features analysis, sensitivity of recognition to the noise and person dependency was investigated. In the person dependency analysis, 3 validation methods, loo, half loo and ten-fold, are implemented. Results show that recognition rate can improve until 96% while system learning is dependent to person. Kernel-PCA in compare to proposed features is more sensitive to have a person dependent or independent system, as recognition rate decrease 88.35 to 55% and 84.74% to 74% respectively. Noise analysis demonstrated that global features are sensitive to the noise.