Abstract

Human facial expression is one of the most powerful, natural and immediate means for communication between each other. Automatic human facial expression recognition is challenging, interesting problem in many areas such as human computer interaction and data driven animation etc. In this paper, Facial expression based on Local Binary Pattern (LBP) is evaluated, "curse of dimensionality" for real world scenarios problem solved by dimensionality reduction using Local Fisher Discriminant Analysis (LFDA) and Sparse representation classifier (SRC) used for efficient facial expression classification. The experiment is performed in both person-independent and person-dependent facial expression recognition cases, on Japanese Female Facial Expression (JAFFE) and observed that LBP features perform stably and robustly over useful range of low resolutions of face images (150 by 110 pixel and 64 by 64 pixel size). Proposed method shows better result than traditional algorithms such as Principal Component Analysis (PCA), Linear Discriminant Analysis (LDA) and LBP+SRC solely.


Improved Combination of LBP plus LFDA for Facial Expression Recognition using SRC


Index Terms

Computer Science

Image Processing
Keywords
Facial expression recognition  Local Binary Pattern  Local Fisher Discriminant
Analysis  Sparse  representation classifier