Feature Selection on Facial Expression Recognition System using Low Variance Filter

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Abstract

Facial expression recognition can differentiate human's current state of emotion, representing what a person is feeling. This can be implemented in many areas such as mental state analysis, human-computer development, etc. Current research already produced good accuracies but not paying more attention to the number of data or performance. This research aimed to produce facial emotion recognition system that focused in reducing the number of features based on facial expression images. We differentiate seven human emotion using Biorthogonal Wavelet Transform(BWT) to extract the features from the image, and utilize Low Variance Filter to reduce high features, and based on the extracted data we build classification model using Support Vector Machine(SVM), also stratified cross validation is used as the validation model. The proposed model successfully produced in average accuracy of 92% even after 95% data reduction is applied to the model. In short, this proposed method is efficient.

Keywords: Facial Expression Recognition, Biorthogonal Wavelet Transform, Low Variance Filter