

Facial Emotional Expression Recognition using Gabor Filter

Gayatri Nehe¹ and Dr. Priti Subramaniam²

Student, Department of Computer Science and Engineering¹

Associate Professor, Department of Computer Science and Engineering²

Shri Sant Gadge Baba College of Engineering and Technology, Bhusawal, Maharashtra, India

Abstract: Facial expressions and gestures provide instinct for interpersonal communication.. Facial expressions and emotions are governed by identification of facial muscle movement by visual cortex and training a machine to identify these highly in-situ movements is our primary interest. Imparting intelligence to computer for identifying facial expressions is a determining task. This theory presents robust facial expression analysis algorithms for static images as well as an efficient extension to sequence of images. Robust Local Binary Patterns and Gabor filters are implemented for extracting feature which are known to provide efficient face representation and analysis. LBP facial features are represented in form of weighted histograms which are classified using Kullback Leibler divergence measure .Artificial Neural Network classifier is also tested for classification of fused Gabor and LBP features. Further expressions are rarely defined by static images as their complete essence lies in a order of images. So further exploration is concerted on analyzing expressions from a sequence of images. To eliminate head pose variations in consecutive frames and register images to keep the dimensional information intact which is necessary for LBP feature representation we adopted SIFT flow alignment procedure and more distant tested the resultant image classification with implemented algorithms. The classification accuracy resulted in 95.24% for static expression images and 86.31 % for sequence of images which is indeed appreciable when compared to other standard methods.

Keywords: Feature Extraction, Gabor Filter, Classifier, Facial Expression

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