AUTOMATIC RECOGNITION OF FACIAL EXPRESSION
BASED ON COMPUTER VISION

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Abstract Automatic facial expression recognition from video sequence is an essential research area in the field of computer vision. In this paper, a novel method for recognition facial expressions is proposed, which includes two stages of facial expression feature extraction and facial expression recognition. Firstly, in order to exact robust facial expression features, we use Active Appearance Model (AAM) to extract the global texture feature and optical flow technique to characterize facial expression which is determined facial velocity information. Then, these two features are integrated and converted to visual words using “bag-of-words” models, and facial expression is represented by a number of visual words. Secondly, the Latent Dirichlet Allocation (LDA) model are utilized to classify different facial expressions such as “anger”, “disgust”, “fear”, “happiness”, “neutral”, “sadness”, and “surprise”. The experimental results show that our proposed method not only performs stably and robustly and improves the recognition rate efficiently, but also needs the least dimension when achieves the highest recognition rate, which demonstrates that our proposed method is superior to others.

Index terms: Facial expression recognition, Active Appearance Model (AAM), Bag of Words model, LDA model, computer vision.