

Abstract: Facial Expression Recognition from Complex Background Using Face Context and Adaptively Weighted Sub-Pattern PCA

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Abstract

This paper discusses on face context and adaptively weighted sub-pattern PCA (Aw-SpPCA) based facial expressions recognition system. We have segmented the face and other parts of the body from the complex environment based on the skin color model. We proposed an algorithm to detect a face region from the segmented image based on constant ratio called golden ratio ($\delta=1.618$). Finally we cropped the desired part of the face to analysis the expression of a person. Unlike PCA based on a whole image pattern, Aw-SpPCA operates directly on its sub patterns partitioned from an original whole pattern and separately extracts features from them. Aw-SpPCA can adaptively compute the contributions of each part and then endows them to a classification task in order to enhance the robustness to both expression and illumination variations. Experiments on one standard face with five types of facial expression database shows that the proposed method is competitive.

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