

Landmark-based multi-points warping approach to 3D facial expression recognition in human

ABSTRACT

Expression in H-sapiens plays a remarkable role when it comes to social communication. The identification of this expression by human beings is relatively easy and accurate. However, achieving the same result in 3D by machine remains a challenge in computer vision. This is due to the current challenges facing facial data acquisition in 3D: such as lack of homology and complex mathematical analysis for facial point digitization. This study proposes facial expression recognition in human with the application of Multi-points Warping for 3D facial landmark. The results indicate that Fear expression has the lowest recognition accuracy while Surprise expression has the highest recognition accuracy. The classifier achieved a recognition accuracy of 99.58%.

Keyword: Facial expression recognition; 3D faces; Multi-point warping; Automatic facial landmark; PCA; LDA