

Patient monitoring in ICU under unstructured lighting condition

Abstract

In this paper, fuzzy classifier is explained and reviewed for detecting facial changes of patient in a hospital in Intensive Care Unit (ICU). The facial changes are most widely represented by eyes and mouth movements. The proposed system uses color images and it consists of three modules. The first module implements skin detection to detect the face. The second module constructs eye and mouth maps that are responsible for changes in eye and mouth regions. The third module extracts the features of eyes and mouth by processing the image and measuring certain dimensions of eyes and mouth regions. Finally a fuzzy classifier used to classify the movements at different illumination levels. From 300 samples of face images, it is found that the identification rate of awakness reaches 97%.

Keywords — Detection of facial changes, fuzzy classifier, ICU patient, unstructured lighting