ABSTRACT

Face detection and recognitions has an important role in cyber and surveillance and patient monitoring system and implementation constraints limit their performance. As compared with other biometrics systems like fingerprint, palm print and iris based recognition, this work has distinct advantages due to its non-invasive and non-contact process. Face images are captured from a distance and the identification does not require interaction with the subject. Similarly, sliced video inputs have received much attention due to its ability to preserve data privacy and still support indexing, searching, mining, and other required operations essential to the medical domain. In this context, in this research work, novel algorithms interleaved with the sliced algorithm are presented with a focus on faster retrieval schemes to suit real-time implementation. This proposed work is applied to patient monitoring systems to detect backward and forward fall of patients in hospitals. Pose variation creates an artifact in face detection and recognition. This effect is taken care of to detect the images and recognizes the correct image even with changes in the posture.

Nevertheless, existing fall detection research is facing various limitations. This study aimed to develop and validate a new fall detection algorithm using 2D information, i.e., trunk angular velocity and trunk angle. The angular kinematics were measured using an inertial measurement unit during slip-induced backward falls and a variety of daily activities. The new algorithm was, on average, able to detect backward falls prior to impact with ninety-five percentage sensitivity, ninety percentage specificity, and two fifty-five ms response time. Hence, it is concluded that the fall detection algorithm detects falls during motion and is suited...
for the elderly population

To realize the fall detection algorithm, the angles acquired by the sensors are used the system inputs and a realtime system on Linux OS is developed to process and make a detection quickly OpenCV-based APIs are used effectively and the work can be easily ported into a handheld embedded device. To make the system scalable and ported with minimum memory requirement dimensional reduction algorithm PCA based intrinsically Coexist. The realtime system generates an ordered feature sequence and then examined in a sequential manner by the proposed nonlinear classifier for recognition purpose. This process iterates for every frame of feature sequence.

**Keywords**  Fall detection  Realtime systems Classifier  open CV based MC vision

Face recognition PCA algorithm