**عنوان مقاله:**

Design of Fall Detection System: A Dynamic Pattern Approachwith Fuzzy Logic and Motion Estimation

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**خلاصه مقاله:**

AbstractEvery year thousands of the elderly suffer serious damages such as articular fractures, broken bones and even death due totheir fall. Automatic detection of the abnormal walking in people, especially such accidents as the falls in the elderly,based on image processing techniques and computer vision can help develop an efficient system that its implementation invarious contexts enables us to monitor people's movements. This paper proposes a new algorithm, which drawing onfuzzy rules in classification of movements as well as the implementation of the motion estimation, allows the rapidprocessing of the input data. At the testing stage, a large number of video frames received from CASIA, CAVAIRdatabases and the samples of the elderly's falls in Sabzevar's Mother Nursing Home containing the falls of the elderlywere used. The results show that the mean absolute percent error (MAPE), root-mean-square deviation (RMSD) andstandard deviation error (SDE) were at an acceptable level. The main shortcoming of other systems is that the elderly needto wear bulky clothes and in case they forget to do so, they will not be able to declare their situation at the time of the fall.Compared to the similar techniques, the implementation of the proposed system in nursing homes and residential areasallow the real time and intelligent monitoring of the people

**کلمات کلیدی:**

Video Processing; Gaussian Mixture Model; HSV Conversion; the Elderly's Falls; Fuzzy Inference System;Motion Estimation

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