## عنوان مقاله:

Modal Frequencies Based Human Action Recognition Using Silhouettes And Simplicial Elements

## محل انتشار:

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## خلاصه مقاله:

Human action recognition has been a pioneer research problem among the researchers. Feature descriptors are categorized into two categories: global and local. The disadvantage of global feature descriptors is that global features only give the structural information of the action whereas disadvantage of local descriptor is they give only motion information of the action. As a result, the recognition rate gets affected. To improve the recognition rate, hybrid descriptors are also used. But the disadvantage of hybrid descriptors is that they increase the complexity of the descriptor as both global and local features have to be fused. To overcome both the issues we proposed a new local feature descriptor in terms of modal frequency using silhouette and simplicial elements of a silhouette with the help of Finite Element Analysis (FEA). This local descriptor represents the distinctive human poses in the form of modal frequency. These modal frequencies are subject to the stiffness matrix of the body that is associated with the displacement. The silhouettes of the human body are used for the analysis. These silhouettes are represented into simplicial elements. The modal frequencies of silhouettes are calculated using simplicial elements. These modal frequencies of the silhouette are used as the feature vectors that are given to the Radial Basis Function-Support Vector Machine (RBF-SVM) classifier. The challenging datasets Weizmann, KTH and IXMAS are used for validation of the proposed methodology

## کلمات کلیدی:

Finite Element Analysis (FEA), Simplicial Element, Displacement Matrix, Modal Frequency, Support vector machine ((SVM