Deep Learning Based Fall Detection Using Simplified Human Posture

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Abstract : Falls are one of the major causes of injury and death among elderly people aged 65 and above. A support system to identify such kind of abnormal activities have become extremely important with the increase in ageing population. Pose estimation is a challenging task and to add more to this, it is even more challenging when pose estimations are performed on challenging poses that may occur during fall. Location of the body provides a clue where the person is at the time of fall. This paper presents a vision-based tracking strategy where available joints are grouped into three different feature points depending upon the section they are located in the body. The three feature points derived from different joints combinations represents the upper region or head region, mid-region or torso and lower region or leg region. Tracking is always challenging when a motion is involved. Hence the idea is to locate the regions in the body in every frame and consider it as the tracking strategy. Grouping these joints can be beneficial to achieve a stable region for tracking. The location of the body parts provides a crucial information to distinguish normal activities from falls.