Fall Detection by Human Pose Estimation and Kinematic Theory

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Abstract—In a society with increasing age, the understanding of human falls it is of paramount importance. This paper presents a Decision Support System whose pipeline is designed to extract and compute physical domain's features achieving the state of the art accuracy on the Le2i and UR fall detection datasets. The paper uses the Kinematic Theory of Rapid Human Movement and its sigma-lognormal model together with classic physical features to achieve 98% and 99% of accuracy in automatic fall detection on respectively Le2i and URFD datasets. The effort made in the design of this work is toward recognition of falls by using physical models whose laws are clear and understandable.

Training Phase

