Analysis of a Public Repository for the Study of Automatic Fall Detection Algorithms

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ABSTRACT

The use of publicly available repositories containing movement traces of real or experimental subjects is a key aspect to define an evaluation framework that allows a systematic assessment of wearable fall detection systems. This papers presents a detailed analysis of a public dataset of traces which employed five sensing points to characterize the user's mobility during the execution of ADLs (Activities of Daily Living) and emulated falls. The analysis is aimed at analysing two main factors: the importance of the election of the position of the sensor and the possible impact of the user's personal features on the statistical characterization of the movements. Results reveal the importance of the nature of the ADL for the effectiveness of the discrimination of the falls.

KEYWORDS

Fall detection systems, accelerometer, gyroscope, smartphone, dataset, wearable, wireless sensors, Bluetooth