

Development of wearable human fall detection system using multilayer perceptron neural network

ABSTRACT

This paper presents an accurate wearable fall detection system which can identify the occurrence of falls among elderly population. A waist worn tri-axial accelerometer was used to capture the movement signals of human body. A set of laboratory-based falls and activities of daily living (ADL) were performed by volunteers with different physical characteristics. The collected acceleration patterns were classified precisely to fall and ADL using multilayer perceptron (MLP) neural network. This work was resulted to a high accuracy wearable fall-detection system with the accuracy of 91.6%.

Keyword: Wearable fall detection system; Tri-axial accelerometer; Classification; Multilayer perceptron