Abstract

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Deep feature learning for FoG episodes prediction in patients with PD

A common symptom of Parkinson's Disease is Freezing of Gait (FoG) that causes an interrupt of the forward progression of the patient's feet while walking. Therefore, Freezing of Gait episodes is always engaged to the patient's falls. This paper proposes a model for Freezing of Gait episodes detection and prediction in patients with Parkinson's Disease. Predicting Freezing of Gait in this paper considers as a multi-class classification problem with 3 classes namely, FoG, pre-FoG, and walking episodes. In this paper, the extracted feature scheme applied for the detection and the prediction of FoG is Convolutional Neural Network (CNN) spectrogram time-frequency features. The dataset is collected from three tri-axial accelerometer sensors for PD patients with FoG. The performance of the suggested approach has been distinguished by different machine learning classifiers and accelerometer axes.