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ADVANCES OF MACHINE LEARNING IN ELECTROMYOGRAPHY (EMG) SIGNAL CLASSIFICATION

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Abstract

In the last decades artificial intelligence techniques are used widely by researchers of neuromuscular disorders to increase the diagnostic performance and accuracy. The Electromyography (EMG) is a commonly used technique to record and analyse myoelectric signals. The processing and classification of EMG signals play a major role in the diagnosis of neuromuscular disorders such as Amyotrophic Lateral Sclerosis (ALS).The article aims to give a brief explanation of the different feature extraction and classification techniques that have been applied for the diagnosis of neuromuscular disorders through EMG signal analysis, and presents a review of the recent applications in this field. Wavelet Transform (WT), Principal Component Analysis (PCA) and Empirical Mode Decomposition (EMD) are the most common used feature extraction techniques. Classification techniques such as Artificial Neural Network (ANN), Multilayer Perceptron (MLP), Support Vector Machine (SVM), K-Nearest neighbours (kNN) and deep learning re used to classify EMG signal.

Author Keywords

EMG electromyography, Feature extraction, Classification, Neuromuscular disorder, Machine learning, Artificial intelligence

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