Biceps activity EMG pattern recognition using neural networks

Abstract

This paper presents a study of EMG signals pattern on an activated muscle. The main rationale is that the pattern of the EMG signal produced may differ depending on the activity of the muscle movement. Therefore,the purpose of this study was to demonstrate the effectiveness of the neural network on recognizing the pattern of certain activities evoked by muscle. Experiments were carried out on a selected muscle. Five subjects were asked to perform several series of voluntary movement with respect to the muscle concerned. From the EMG data obtained, four statistical features are computed and are applied to a feed-forward back-propagation neural network. Overall, the network can discriminate different EMG signal patterns with a successful rate of up to 88%.

Keywords — EMG, neural networks, pattern recognition.