

COMPARISON OF LOCAL DISCRIMINANT ANALYSIS AND SINGULAR VALUE DECOMPOSITION FOR CLASSIFICATION OF SURFACE EMG SIGNAL

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ABSTRACT

Electromyography (EMG) signal is electrical manifestation of neuromuscular activation that provides access to physiological processes which cause the muscle to generate force and produce movement and allow us to interact with the world. In this paper, an identification of six degree of freedom for evaluating and recording physiologic properties of muscles of the forearm at rest and while contracting is presented. The first step of this method is to analyze the surface EMG signal from the subject's forearm using Local Discriminant Analysis (LDA) and Singular Value Decomposition (SVD) to extract features from raw surface EMG(sEMG) signal. The second step is to import the feature values into multi class Support Vector Machine as a classifier, to identify six degree of freedom viz. open to close, close to open, supination, pronation, flexion and extension

Keywords: sEMG, LDA, SVD, Multi- Class Support Vector Machine(MSVM).