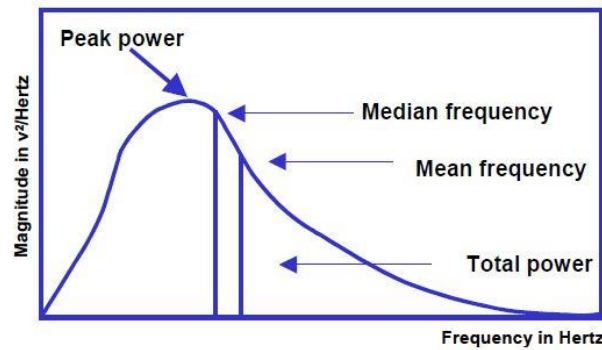


Purpose:

This repository includes 3 sub projects related to EMG signal processing.

- 1- EMG fatigue feature extraction: in this file we define 4 types of frequency-based features for fatigue analysis including median frequency, mean frequency, peak frequency and total power of EMG signal.



- 2- EMG Muscle activation: we provide a code to decide when a muscle is activated and deactivated based on EMG signal.
- 3- Fatigue feature analysis: this file includes datasets of leg press EMG recording signals of 21 individuals, Median frequency of beginning and ending of quadriceps muscles were studied.

Challenges:

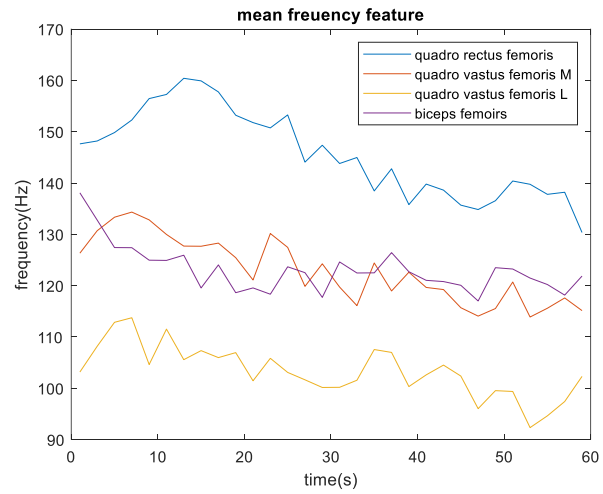
- Signal preprocessing
- Signal smoothing
- Signal rectification
- Feature extraction
- Statistical analysis

Approaches:

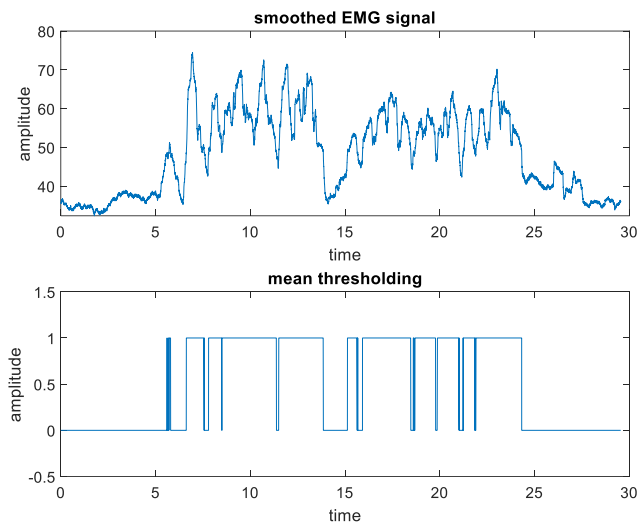
- Using proper bandpass filter for artifact removal
- Root-mean squared or Moving average for signal smoothing
- Fast Fourier transform for feature extraction

Result:

Feature extraction



Muscle activation



Requirements:

MATLAB