ELEC 811 – Winter 2019
Assignment1

Due: March. 6th, 2019

EMG signals were recorded from the brachioradialis muscle, at 90 degree elbow joint angle. The linear electrode array with 8 monopolar channels, shown in figure below, was used to collect the surface EMG data. The EMG data were collected using the EMG-USB2, which sampled the EMG data at 2048 Hz.

1- The provided EMG signals are raw EMG. Filter the EMG signals. Explain how you filtered the signals. (The provided EMG was recorded for 1s)
2- Construct the differential EMG signals (by subtracting the neighboring channels) and estimate the amplitude of the EMG from each channel. Give the estimated mean amplitudes that you obtained.
3- Compare the values that you obtained for the amplitude estimate for each channel. Can you explain any differences?
4- If you were asked to report the amplitude of the recorded EMG from the brachioradialis muscle as one value, what would you report? Why?
5- Plot approximately 0.1 s from three regions of the obtained differential signals and see if you can locate the innervation zone (IZ) or not? Note, it will help if you offset the channels. Show one of your plots and explain how you figured out the location of the IZ?