TIME-FREQUENCY ANALYSIS AND WAVELETS

Exercise for Lecture 6

Download the file ‘dwtsignal.mat’ at http://www.hst.aau.dk/~enk/ST8
The file contains 2 signals:

- “Spikes” is a mixed of nerve action potentials and noise
- “nois” is background noise

Both signals are sampled at 48 kHz. Apply the following to both signals and discuss the difference.

With Matlab

1) Plot the signal
2) Make full DWT decomposition and plot.
3) De-noise the signal with a threshold of DWT coefficients (Play with different threshold levels).
4) Use iDWT to return to the time domain and compare it with the original signal. Discuss
5) Repeat step 2-4 using different mother wavelets.