

ECE-497/BME-491: Applied Biomedical Signal Processing

Homework #4

Due at the beginning of class, January 22, 2007

Download and uncompress the data file *eeg_data.dat*. For the remainder of this problem you cannot just duplicate your results from laptop assignments 5 or 6 (you should use your code, but not the same data segments, you can use the same channels but at different times.)

a) Using templates of at least 50 sample points, use the autocorrelation method to detect the presence of alpha waves using two channels of data.

b) Using templates of at least 50 sample points, use the cross correlation method to detect the presences of alpha waves using four channels of data (using two at a time).

c) Using the data segments in part b, plot the signals, the power spectrum of the signals, the cross spectrum of the signals, and the magnitude squared coherence of the signals. These should be clearly labeled. (See notes from class.)