Assignment 8

Deadline: Tuesday, 24.01.2011

Assignment 8.1 (5 Points)

a) [5 Points] Prove the recursive computation of $a_{s,t}$:

$$a_{s,t} = \frac{1}{\sqrt{2}}(a_{s+1,2t} + a_{s+1,2t+1})$$

Assignment 8.2 (15 Points)

Consider the following sequential signal of length 8: f(x) = (4,7,2,-5,6,7,4,2) for x=0,1,…,7

b) [7.5 Points] Compute the wavelet transform of the signal and give all coefficients $a_{s,t}$ and $c_{s,t}$.
c) [7.5 Points] Plot all wavelet basis functions $\psi_{s,t}(x)$ for all valid s and t used in the wavelet representation of above signal. Using these plots, explain the meaning of the coefficients $c_{s,t}$.