

BMT 403 : Einführung in die Biosignalverarbeitung Ergänzende Folien 5

Prof. Dr. Dr. Daniel J. Strauss

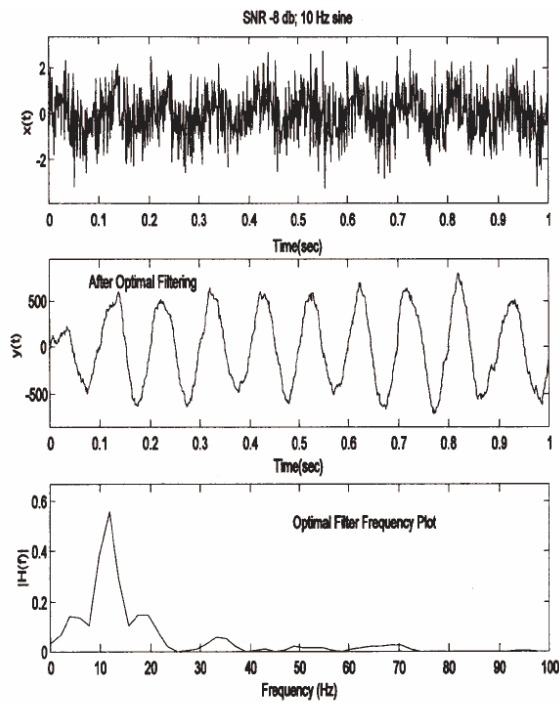


FIGURE 8.3 Application of the Wiener-Hopf equation to produce an optimal FIR filter to filter broadband noise (SNR = -8 db) from a single sinusoid (10 Hz.) The frequency characteristics (bottom plot) show that the filter coefficients were adjusted to approximate a bandpass filter with a small bandwidth and a peak at 10 Hz.

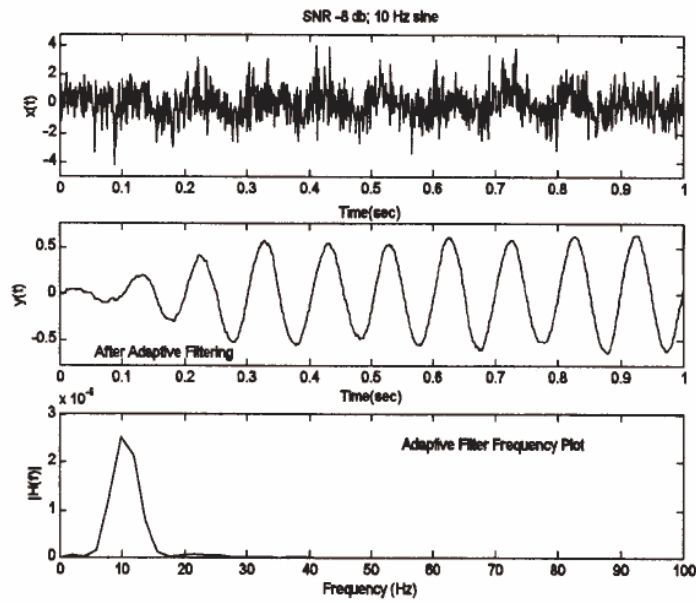


FIGURE 8.8 Application of an adaptive filter using the LSM recursive algorithm to data containing a single sinusoid (10 Hz) in noise (SNR = -8 db). Note that the filter requires the first 0.4 to 0.5 sec to adapt (400–500 points), and that the frequency characteristics of the coefficients produced after adaptation are those of a bandpass filter with a single peak at 10 Hz. Comparing this figure with Figure 8.3 suggests that the adaptive approach is somewhat more effective than the Wiener filter for the same number of filter weights.