MSE OPTIMUM ZONE AND MULTI–ZONE FILTERING (ThuAmOR7)

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✱ Abstract :

We present a new approach for optimum filtering which we call as the zone filtering. In zone filtering, one is only interested on the optimal filtering of a part of the finite length signal. Therefore error is only computed for that part of the signal. When the MSE optimum filtering formulation is done, the result turns out to be the Wiener filtering with covariance method. We show that as long as the length of the FIR zone Wiener filter is the same as the zone length and the optimum delay is introduced, MSE performance is slightly better than that of the IIR Wiener filter. Therefore with zone filtering, one obtains a performance, which can be achieved by an IIR filter, by using an FIR filter. Proposed approach is suitable for parallel implementations and is computationally more efficient than a FIR or Block Wiener filter with comparable performance.

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