

# Method for Exact Performance of Forward and Inverse Wavelet Transform in Real Time

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**Abstract.** The new method of segmented wavelet transform (SegWT) makes it possible to compute the discrete-time wavelet transform of a signal segment-by-segment. This in fact means that the method could be utilized for wavelet-type processing of a signal in “real time”, or in case we need to process a long signal (not necessarily in real time), but there is insufficient computational memory capacity for it (for example in the signal processors). Then it is possible to process the signal part-by-part with low memory costs by the new method.

The method is suitable also for the speech processing, e.g. denoising the speech signal via thresholding the wavelet coefficients or for speech coding.

In the paper, the principle of the forward segmented forward wavelet transform is explained and the algorithm is described in detail, with objective illustrations. The latest findings about the algorithm of the inverse segmented wavelet transform are also presented – for example we have found that this stage of the algorithm inevitably introduces a time-lag of one segment’s length, which was not the problem of the forward stage.