Recursive updating of linear convolution

Rimantas Pupeikis[1]

[1]Vilnius University

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Abstract

It is assumed that linear time-invariant (LTI) system input signal samples are updated by a sensor in real time. It is urgent for every new input sample or for small part of new samples to update an ordinary convolution as well. The idea is that well-known convolution sum algorithm, used to calculate output signal, should not be recalculated from the begining with every new input sample. It is necessary just to modify the algorithm, when the new input sample renew the set of previous samples. The recursive algorithm is worked out for such a purpose. Example of recursive computation of the convolution is presented. Conclusion is given.

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`pupeikis.pdf` available at https://authorea.com/users/293570/articles/421589-recursive-updating-of-linear-convolution