Processing arbitrary-length signals with linear-phase cosine-modulated filter banks

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ABSTRACT

This paper presents methods for the decomposition of arbitrary-length signals with linear-phase cosine-modulated filter banks. The analysis filters of this filter bank are divided into two sets having different centers of symmetry. This prohibits the use of standard extension methods as described in the literature. Nevertheless, we show that symmetric extension can be adapted in such a way that the filter bank is support-preservative. Methods for dealing with arbitrary length of both signals and filters are presented. Finally, applications in image and audio coding are outlined. In audio coding the proposed processing methods allow to efficiently avoid pre-echoes.