

Erratum

Correction to “Characterization of Nonuniform Perfect-Reconstruction Filterbanks Using Unit-Step Signal”

In [1], due to an error in the post-production phase of publication, an entire paragraph was inadvertently deleted. The paragraph, which should have appeared as the second paragraph of the paper on page 2490, after the line “filterbanks, see [9] and [10].” is shown as follows. The staff of IEEE Periodicals Department regrets this error.

In this paper, we pay attention to the eigensignals of the down-samplers that are the basic elements of a filterbank. Besides the unit-impulse signal, another less-applied eigensignal of a down-sampler is the unit-step signal. Our approach to the problem of characterization of nonuniform PR filterbanks is based on the response of the systems to the unit-step signal. A rationale behind

this idea is that nonuniform filterbanks employ different sampling rate conversion factors on different channels. Therefore, making use of a signal that behaves in the same manner for different factors can simplify the mathematical manipulation and provide a better understanding of the system and the corresponding PR conditions. We focus on the characterization of nonuniform PR filterbanks with integer sampling factors. By using the basic property of linearity to its full capacity, we are able to limit our treatment to the response of nonuniform filterbanks to the unit-step signal $u(n)$, and its delayed replicas $u(n - D)$, where D is a non-negative integer. By imposing the PR condition with respect to such inputs, we obtain a set of necessary and sufficient conditions that hold for arbitrary input signals $x(n)$ and are free from the complex roots of unity. Our conditions characterize the entire family of PR filterbanks of uniform or nonuniform type with integer decimation factors.

REFERENCES

- [1] S. Samadi, M. O. Ahmad, and M. N. S. Swamy, “Characterization of nonuniform perfect-reconstruction filterbanks using unit-step signal,” *IEEE Trans. Signal Processing*, vol. 51, pp. 2490–2499, Sept. 2004.

Manuscript received August 31, 2004.

Digital Object Identifier 10.1109/TSP.2004.836845