

Corrections

Corrections to “Novel System Inversion Algorithm With Application to Oversampled Perfect Reconstruction Filter Banks”

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In the original paper [1], multimedia should have been provided and identified in the first footnote. The link for the multimedia is provided in the footnote below.

In addition, on page 3012, the reference to Fig. 5 should be changed to Fig. 4 in the following sentence of the left column: “In order to visualize the filter banks, we have plotted normalized versions of the average polyphase magnitudes of analysis and synthesis filter banks in Fig. 5, i.e., $|\bar{h}(f)| := 1/p \sum_{k=0}^{p-1} |h_k(e^{2\pi i f})|$ and $|\bar{g}(f)| := 1/p \sum_{k=0}^{p-1} |g_k(e^{2\pi i f})|$.”

In addition, on page 3013, the final paragraph of Section V, before the Conclusion, should correctly read as follows:

“Finally, we can solve for the set of optimal inverses. The matrix $\mathbf{P} = P$ and a basis $\mathbf{P}_0^{1/2}$ of the co-image are given by

$$\mathbf{P} \approx \begin{bmatrix} 0.0013736 & -0.0010279 \\ -0.0010279 & 0.0007692 \end{bmatrix}$$

$$\mathbf{P}_0^{1/2} \approx [0.5991447 \quad 0.8006408].$$

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This paper contains supplementary downloadable material available at <http://ieeexplore.ieee.org>, provided by the authors. The files in the archive can be used to reproduce the numerical examples in the original paper [1].

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After some further computations, $C := [C_{11}, C_{21}]^{\sim}$ is obtained:

$$C(z) \approx \left[\begin{array}{ccc|cc} 0 & 0 & 0 & 0 & 36.055513 \\ 0 & 0 & 0 & 0.1482499 & 2.773501 \\ 0 & 0.5 & 0 & -0.1482499 & -2.7735011 \\ \hline 0 & 0 & 1 & 0 & 0 \\ -0.9636241 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ \hline 0.0741249 - 0.1482499z & & & 1.3867535 - 2.7735011z & \\ & & & z^2 & -0.0000002z + z^2 \\ \hline & & & & -34.743961 \\ & & & & z \\ \hline & & & & 1 \\ & & & & 1 \end{array} \right].$$

The set of optimal inverses is now given by (9). The canonical choice $K(z) = 0$ gives the optimal inverse $z^{-1}G + (C_{11} + \mathbf{L}_0^* C_{21})G_{\perp}$.”

Finally, on page 3014, left column, the next to last sentence reads: “This implies $(I - H(z_0)H^{\dagger}(z_0))W(z_0)x = (I - H(z_0)H^{\dagger}(z_0))H(z_0)u_1 = u_1 - u_1 = 0$.” The formula should instead read “ $(I - H(z_0)H^{\dagger}(z_0))W(z_0)x = (I - H(z_0)H^{\dagger}(z_0))H(z_0)u_1 = H(z_0)u_1 - H(z_0)u_1 = 0$.”

REFERENCES

- [1] S. Wahls and H. Boche, “Novel system inversion algorithm with application to oversampled perfect reconstruction filter banks,” *IEEE Trans. Signal Process.*, vol. 58, no. 6, pp. 3008–3016, Jun. 2010.