Comments and Corrections

Corrections to "Anomaly Detection in Hyperspectral Images via Regularization by Denoising"

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The following corrections have been identified in the paper titled "Anomaly detection in hyperspectral images via regularization by denoising" [1] published in the IEEE JOURNAL OF SELECTED TOPICS IN APPLIED EARTH OBSERVATIONS AND REMOTE SENSING. It is important to note that these corrections are limited to minor typographical errors and mixed notations, and do not affect the overall content or results presented in the paper. We emphasize that all results were obtained using the correct versions of the algorithms, and that the errors described here only appear in the description of the methods in the paper, not in our implementation of the methods.

1) According to [2], the denoiser being differential is an extra hypothesis, and not a consequence of (C1)–(C3).
2) The correct augmented Lagrangian expression should be $\frac{1}{2}\|\boldsymbol{P}-\boldsymbol{D}\boldsymbol{S}-\boldsymbol{A}\|_F^2+\beta\phi(\boldsymbol{Z})+\lambda\|\boldsymbol{A}\|_{2,1}+\frac{\mu}{2}\|\boldsymbol{Z}-\boldsymbol{S}+\frac{1}{\mu}\boldsymbol{V}\|_F^2-\frac{1}{2\mu}\|\boldsymbol{V}\|_F^2$. This typo was propagated from the original DeCNN-AD paper [3].
3) In Algorithms 1 and 2, the updates of $\boldsymbol{V}$ were mistakenly written using increment notation in the final version of the paper. The corrected updates should be $\boldsymbol{V}_{k+1}\leftarrow\boldsymbol{V}_k+\mu_k(\boldsymbol{Z}_{k+1}-\boldsymbol{S}_{k+1})$ in Algorithm 1, and $\boldsymbol{V}_{k+1}\leftarrow\boldsymbol{V}_k+\mu(\boldsymbol{Z}_{k+1}-\boldsymbol{S}_{k+1})$ in Algorithm 2.

REFERENCES

[1] M. L. Brandão-Junior, V. C. Lima, T. A. P. P. Teixeira, E. R. de Lima, and R. d. R. Lopes, "Anomaly detection in hyperspectral images via regularization by denoising," *IEEE J. Sel. Topics Appl. Earth Observ. Remote Sens.*, vol. 15, pp. 8256–8265, 2022.
[2] Y. Romano, M. Elad, and P. Milanfar, "The little engine that could: Regularization by denoising (RED)," *SIAM J. Imag. Sci.*, vol. 10, no. 4, pp. 1804–1844, Jan. 2017, doi: 10.1137/16M1102884.
[3] X. Fu, S. Jia, L. Zhuang, M. Xu, J. Zhou, and Q. Li, "Hyperspectral anomaly detection via deep plug-and-play denoising CNN regularization," *IEEE Trans. Geosci. Remote Sens.*, vol. 59, no. 11, pp. 9553–9568, Nov. 2021.

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