CALL FOR PAPERS

IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Special Issue on
"Hyperspectral Dimensionality Reduction Theory and Methods"

Hyperspectral imaging simultaneously collects spectral responses of ground objects using hundreds of narrow bands, and it has great potentials to identify different ground objects with subtle spectral divergences. But a large number of narrow and continuous bands brings about serious information redundancy of hyperspectral data. Moreover, the high dimensionality resulting from highly correlated bands brings about huge data volume, big data storage, high computational costs and large communication bandwidth that tell against real-time applications. Besides, the high dimensionality of HSI data brings about the "curse of dimensionality" problem for classification. Accordingly, dimensionality reduction (DR) is a fundamental but significant step for hyperspectral image processing, which could alleviate above severe problems while maintaining the application performance of original data. DR on hyperspectral data can be achieved through either feature extraction and feature selection (i.e., band selection). A variety of DR methods have been presented in current hyperspectral literature, but some key issues have not been well handled, e.g., theoretical explanations of dimensionality-reduced hyperspectral data, the appropriate intrinsic dimensionality of hyperspectral data. Specifically, the era of artificial intelligence and big data are asking for more and more innovative and effective DR methods to process the big hyperspectral data.

The theme of the special issue will be on advanced theory and methods about DR on hyperspectral data. Submissions should address the following or closely related topics:

- Comparisons and performance evaluation of different DR methods;
- Intrinsic dimensionality estimation of hyperspectral data;
- The development of hyperspectral DR tools;
- Fast computational schemes for DR on big hyperspectral data;
- Machine learning and hyperspectral DR methods, e.g., deep learning, manifold learning, transfer learning;
- Semisupervised or supervised DR theory and methods;
- Application examples of dimensionality-reduced hyperspectral data

Schedule

January 1, 2020 Submission system opening
~~June 30~~August 31, 2020 Submission system closing
2020 Publication date

Format

All submissions will be peer reviewed according to the IEEE Geoscience and Remote Sensing Society guidelines. Submitted articles should not have been published or be under review elsewhere. Submit your manuscript on http://mc.manuscriptcentral.com/jstars, using the Manuscript Central interface and select the "Hyperspectral Dimensionality Reduction Theory and Methods" special issue manuscript type. Prospective authors should consult the site http://www.grss-ieee.org/publication-category/jstars/ for guidelines and information on paper submission. All submissions must be formatted using the IEEE standard format (double column, single spaced). For a template in this format please consult the site http://www.ieee.org/publications_standards/publications/authors/author_templates.html. Please note that as of January 1, 2020, J-STARS will become a fully open-access journal, charging a flat rate of $1250 for each paper.

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