

Foreword to the Special Issue on Hyperspectral Image and Signal Processing

THIS special issue presents advances in signal and image processing related to hyperspectral remote sensing (or imaging spectroscopy). We present the selected 32 articles, which distill the state-of-the-art and the advances in hyperspectral image analysis and its applications. This special issue of JSTARS follows the 9th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS) held in Amsterdam, The Netherlands, in September 2018. It contains both extended versions of contributions presented in WHISPERS and regular articles submitted to JSTARS dealing with contemporary aspects of hyperspectral image and signal processing. Main topics show continuity. At the first glimpse, the articles contained in this special issue maintain the methodological flavor of both WHISPERS and the previous special issues. The main topics remain classification, unmixing, spectral-spatial methods, dimension reduction, target and anomaly detection, or sparse methods. Fig. 1 features the word cloud extracted from the titles of the papers published in this issue.



Fig. 1. Word cloud extracted from the titles of the papers published in this issue.

However, one should also underline the following rising themes: artificial intelligence, and deep learning, of becoming of more and more critical importance, taking the state-of-the-art to another level in many applications.

Also, one should underline the growing importance of applications-oriented papers, ranging from mining applications to the detection of drug crops or the detection of landslides. This clearly shows the maturity of the whole chain involved in imaging spectroscopy; hyperspectral sensors are now more and more commonly available. The data processing algorithms now offer robust and reliable solutions and end-users can take full advantage of this technology for a variety of applications.

High-performance computing, with GPUs, is also available to make sure the developed methodologies can meet operational requirements.

Further stressing this convergence of the needs and the available tools, WHISPERS 2018 was for the first time associated to a professional tradeshow, the SpectroExpo, gathering the most prominent companies involved in the hyperspectral world, from sensor designers to service providers or software companies (see Fig. 2).



Fig. 2. WHISPERS is now colocated with a professional tradeshow, the SpectroExpo.

Following this successful meeting, SpectroExpo and WHISPERS were again organized together and colocated in 2019, gathering over 330 individuals both from the industry and the academic world. Please save the date for the 3rd SpectroExpo and the 11th WHISPERS Meeting to be held on September 30, 2020–October 2, 2020, in Amsterdam, the Netherlands. For more information visit: <http://www.spectroexpo.com/>

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