

## CALL FOR PAPERS

# IEEE Journal of Selected Topics in Signal Processing Special Issue on Tensor Decomposition for Signal Processing and Machine Learning

Tensor decomposition, also called tensor factorization, is very useful for representing and analyzing multidimensional data. Tensor decomposition has been applied in signal processing (speech, audio, communications, radar, biomedicine), machine learning (clustering, dimensionality reduction, latent factor models, subspace learning), and beyond. Tensor decomposition helps us to learn a variety of models, including community models, probabilistic context-free-grammars, the Gaussian mixture model, and two-layer neural networks.

The multidimensional nature of the signals and even “bigger” data provide a good opportunity to exploit tensor-based models and tensor network, with the aim of meeting the strong requirements on flexibility, convergence, and efficiency. Although considerable research has been done on this subject, there are many challenges still outstanding that need to be explored, like high computational cost of algorithms, tensor deflation, massive tensor decomposition, etc. The goal of this special issue is to attract high quality papers containing original research on tensor methods, tensor decompositions for signal processing and machine learning, and their applications in big data, social network, biomedical and healthcare, advanced data-driven information and communication technology (ICT) systems and others.

Potential topics include, but are not limited, to the following:

- New tensor decompositions and uniqueness issues of tensor models
- Low-rank approximations
- Fast and robust tensor decompositions
- Novel algorithms for existing tensor decomposition models
- Optimization problems related to tensor models
- Tensor-based detection and parameter estimation
- Tensor decomposition for 5G/B5G wireless communications
- Tensor-based data-driven networking
- Tensor processing and analysis in social networks
- Tensor decomposition for industry internet of things
- Spatial temporal data via tensor factorization
- Computer vision with tensor method
- Biomedical, healthcare, and audio signal processing with tensors
- Pattern recognition and neural networks with tensor decomposition

### **Submission Guidelines:**

Prospective authors should follow the instructions on the IEEE JSTSP webpage <https://signalprocessingsociety.org/publications-resources/ieee-journal-selected-topics-signal-processing> and submit their manuscripts at <http://mc.manuscriptcentral.com/jstsp-ieee>.

### **Important Dates:**

Manuscript submissions due: July 1, 2020  
First review due: September 1, 2020  
Revised manuscript due: November 1, 2020  
Second review due: December 15, 2020  
Final manuscript due: January 15, 2021

### **Guest editors:**

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