

Special Issue on **Advanced Signal Processing and Adaptive Learning Methods**

CALL FOR PAPERS

Many problems in signal processing and machine learning fields are similar or related. Computational intelligence and machine learning dominantly deal with statistical data processing, whereas statistical signal processing is the area which exploits similar methods and algorithms as statistical data processing. Furthermore, adaptive learning can be classified as the fourth generation of machine intelligence as it combines principles from previous generations based on deep learning for a novel generation of machine intelligence.

Modern technology relies on research in the areas of signal processing and artificial intelligence, and a number of methods and algorithms have been developed with the aim of solving various problems: speech and speaker recognition, recognition and classification of signals (image, speech, audio, and biomedical signals), recognition of emotions, signal quality enhancement (filtering and other algorithms), denoising and detection of signals in the presence of noise, pattern recognition in signals (speech, image, ECG, EEG, and other biomedical signals), automatic diagnosis detection from biomedical signals, methods and algorithms in wireless sensors nodes, networks, wireless communications, and predictive maintenance as well as business prediction.

The main scope of signal and data processing in real time (or limited time) is to reduce the amount of data, while providing high quality of representation of such a reduced signal, that is, data source. The realization of this goal is supported by statistical data processing and statistical signal processing as well as methods and algorithms which deal with signal and data reduction. The most efficient methods and algorithms incorporate adaptation. Learning Vector Quantization (LVQ) as well as other methods can be considered as a good alternative to deep learning.

This special issue aims not only to give an overview on the application of learning methods and algorithms for signal processing, but also to highlight recent developments in these two fields independently and combined.

We also encourage authors to discuss simple learning techniques which are based on intelligent scalar quantizers (with enhanced robustness and adaptive properties), as well as to submit articles on solutions that represent the intersection of advanced signal processing applications and learning methods and algorithms. This special issue welcomes original research and review articles in signal processing, machine learning, and computational intelligence.

Potential topics include but are not limited to the following:

- ▶ Signal compression and adaptive machine learning
- ▶ Deep neural networks, convolutional neural networks, and deep belief networks
- ▶ Parametric machine learning estimation in signal and data density models
- ▶ Kernel estimation of density and kernel adaptive estimation density function
- ▶ Speech recognition/synthesis and speaker identification
- ▶ Recognition of emotions in voice signal and face recognition
- ▶ Linear and nonlinear prediction methods
- ▶ Estimation of dynamic range of amplitudes, mean, and variance using classic and machine learning methods
- ▶ Graph signal processing and deep learning algorithms
- ▶ Adaptive machine learning estimation and signal classification
- ▶ Methods of filter coefficients adaptation and adaptive estimation of statistical parameters in processing of signals and data
- ▶ Quantization in deep neural networks
- ▶ Quantization in machine learning algorithms and signal processing methods
- ▶ Methods of signal preprocessing and data reduction
- ▶ Machine learning algorithms in biomedical signal processing

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/cin/asp/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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Submission Deadline

Friday, 22 February 2019

Publication Date

July 2019