Special Issue on Robust Measures and Tests Using Sparse Data for Detection and Estimation

The sparse (undersampled) data constraint in the statistical signal processing is quite common for efficient computation and system time-invariance validity. Hence, the research about how to build reliable statistical measures and statistical tests using sparse data for different signal processing applications is still quite challenging nowadays. When the real-time efficiency or the unnoticeable processing delay is required with the help of the state-of-the-art microprocessors or DSP platforms, researchers are still making continual efforts to develop new robust statistical methodologies. Two crucial indicators, "*number-of-samples to number-of-parameters-to-be-estimated ratio*" (referred to as SPR) and "*system performance versus signal-to-interference-plus-noise ratio*"(referred to as SPSINR), can reflect both sparse data constraint and robustness. The objective is to seek new ideas and techniques to surmount the existing signal processing methods in terms of low SPR and superior SPSINR but still achieve good computational efficiency. In the signal processing research, reliable statistical measures such as statistical moments/cumulants, L_p-norms, mean-square-errors (MSE), Cramer-Rao bounds (CRB), signal-to-noise ratio (SNR), signal-to-interference ratio (SIR), mutual information/entropy, divergence, etc. are always in pursuit, especially subject to the restriction on the limited data and/or the time-variance of the underlying systems instead of the classical asymptotical analysis based on the infinite data set. This special issue will focus on all aspects of design, development, implementation, operation, and applications of robust measures and tests using sparse data for detection and estimation.

We invite original and unpublished research contributions in all areas relevant to signal processing in cooperative cognitive radio systems. The topics of interest include, but are not limited to:

- New robust measures or objective functions for detection and estimation using sparse data
- New robust statistical tests for detection and estimation using sparse data
- New theoretical and empirical analyses for detection and estimation using sparse data
- New results for explicit expressions of CRB or variance for detection and estimation using sparse data
- Reliable signal quality measures using sparse data
- General frameworks for evaluating various statistical measures/tests using sparse data

Prospective authors should visit http://www.signalprocessingsociety.org/publications/periodicals/jstsp/ for information on paper submission. Manuscripts should be submitted using the Manuscript Central system at http://mc.manuscriptcentral.com/jstsp-ieee. Manuscripts will be peer reviewed according to the standard IEEE process.

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