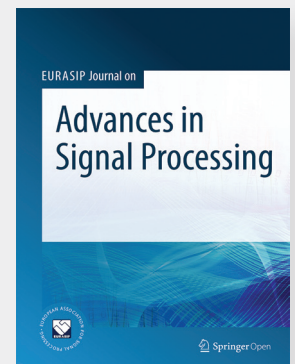# EURASIP Journal on Advances in Signal Processing

Special Issue on Signal Processing for Big Data

The information explosion propelled by the advent of online social media, the Internet, and the global-scale communications has rendered statistical learning from Big Data increasingly important. At any given time around the globe, large volumes of data are generated by today's ubiquitous communication, imaging, and mobile devices such as cell-phones, surveillance cameras, medical and e-commerce platforms, as well as social-networking sites. While Big Data can be definitely perceived as a big blessing, big challenges also arise with large-scale datasets. The sheer volume of data makes it often impossible to run analytics using a central processor and storage, and distributed processing with parallelized multi-processors is preferred while the data themselves are stored in the cloud. As many sources continuously generate data in real time, analytics must often be performed "on-the-fly" and without an opportunity to revisit past entries. Due to their disparate origins, the resultant datasets are often incomplete and include a sizable portion of missing entries. In addition, massive datasets are noisy, prone to outliers, and vulnerable to cyber-attacks. Given these challenges, ample signal processing opportunities arise.

This special issue seeks to provide a venue for ongoing research in novel models applicable to a wide range of Big Data analytics problems, as well as data-adaptive algorithms and architectures to handle the practical challenges, while revealing fundamental limits and insights on the mathematical trade-offs involved.

Call for Papers

Potential topics include, but are not limited to:

- Theoretical foundations and algorithms for Big Data analytics
  1. Compressive sampling, matrix completion, low-rank models, and dimensionality reduction
  2. Graph, latent factor, tensor, and multi-relational data models
  3. Robustness to outliers and missing data; convergence and complexity issues; performance analysis
  4. Scalable, online, active, decentralized, deep learning
  5. Randomized schemes for very large matrix, graph, and regression problems
  6. Convex and nonconvex distributed/parallel/incremental optimization methods
  7. Privacy, security and data-integrity considerations

- Architectures and applications for large-scale data analysis and signal processing
  1. Scalable, distributed computing, e.g., Mapreduce, Hadoop
  2. Streaming for real time-analytics and graph signal processing, e.g., GraphLab, Giraph
  3. Systems biology; genomics; bioinformatics; semantics; sentiment and natural language processing
  4. Green energy and smart power grid analytics; climate; astronomical; geoscience; multimodal sensing
  5. Social and information networks; the Internet; financial and e-trading; now-casting
  6. Preference measurement; recommender systems; targeted advertising

Submission Instructions:

Before submission, authors should carefully read over the Instructions for Authors, which are located at asp.eurasipjournals.com/authors/instructions. Prospective authors should submit an electronic copy of their complete manuscript through the SpringerOpen submission system at asp.eurasipjournals.com/manuscript according to the submission schedule. They should choose the correct Special Issue in the "sections" box upon submitting. In addition, they should specify the manuscript as a submission to the "Special Issue on Signal Processing for Big Data" in the cover letter. All submissions will undergo initial screening by the guest editors for fit to the theme of the Special Issue and prospects for successfully negotiating the review process.

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Submission Schedule
Manuscripts due:
June 15, 2015