

## CALL FOR PAPERS

In machine learning, sparsity is usually a beneficial property. It refers to a collection of methods, pursuing sparsity of learning result or sparse configurations in model design, which generates better interpretability on data, and satisfying some goodness-to-fit measure at the same time. For example, the well-known methods where the dictionary is learned from data to express the signal with sparse property have been successfully used for the large range of biomedical image processing tasks. It measures the complexity for some defined structure that how many atomic elements are required to represent the element of observation.

Models with sparsity and corresponding sparse machine learning techniques have offering a great number of contributions during the last decade in scientific fields, such as deep-learning community. This is connected with interesting areas such as fast optimization, statistical robustness (sparsity is related to valuable statistical performance), evaluation of the model advantages, and computational complexity improvement. Due to the fact that we have seen a growing interest in advanced sparse machine learning topic, the special issue aims to bring together scholars from mathematics, computer science, engineering, and seeking both theoretical and applied enlightening ideas and results on the general area of sparsity-related principle and computational methods, for high dimensional dataset analysis and related applications.

Authors are encouraged to submit original and high-quality work that is not under consideration by or already appears in, any journals or publication media. The peer review will be performed for all manuscript submissions according to the standards of the special issue.

Potential topics include but are not limited to the following:

- ▶ Sparse coding, sparse representations, and dictionary learning
- ▶ Sparsity measures in approximation theory, information theory, and statistics
- ▶ Advanced supervised and unsupervised deep-learning algorithms
- ▶ Sparsity-based reinforcement learning
- ▶ Convex and nonconvex optimization with sparsity
- ▶ Novel sparse machine learning model
- ▶ Sparse learning algorithm and computation complexity analysis
- ▶ Dimensionality reduction and feature learning
- ▶ Sparse and low-rank approximation algorithms
- ▶ Sparse regularization theory
- ▶ Pattern recognition
- ▶ Data analysis applications, including but not limited to computer vision, image processing, signal processing, speech recognition, natural language processing, robotics, communication, sensors and network, machine fault diagnosis, neuroscience, biomedical informatics, geophysics, social networks, and big data tasks

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

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

**Lead Guest Editor**

Incheon Paik, University of Aizu,  
Aizuwakamatsu, Japan  
[paikic@u-aizu.ac.jp](mailto:paikic@u-aizu.ac.jp)

**Guest Editors**

Banage T. G. S. Kumara, Sabaragamuwa  
University of Sri Lanka, Ratnapura, Sri  
Lanka  
[btgsk2000@gmail.com](mailto:btgsk2000@gmail.com)

Tsendsuren Munkhdalai, University of  
Massachusetts, Worcester, USA  
[tsendeemts@gmail.com](mailto:tsendeemts@gmail.com)

Zuyuan Yang, Guangdong University of  
Technology, Guangzhou, China  
[yangzuyuan@aliyun.com](mailto:yangzuyuan@aliyun.com)

**Submission Deadline**

Friday, 6 October 2017

**Publication Date**

February 2018