Special Issue of **Applied Soft Computing (Elsevier)**

Special Issue on

Randomization-Based Deep and Shallow Learning Algorithms

Call for Papers (Submission Opens in Jan 2020)

Randomization-based learning algorithms have received considerable attention from academics, researchers, and domain workers because randomization-based neural networks can be trained by non-iterative approaches possessing closed-form solutions. Those methods are in general computationally faster than iterative solutions and less sensitive to parameter settings. Even though randomization-based non-iterative methods have attracted much attention in recent years, their deep structures have not been sufficiently developed nor benchmarked. This special session aims to bridge this gap.

The first target of this special session is to present the recent advances of randomization-based learning methods. Randomization based neural networks usually offer non-iterative closed form solutions. Secondly, the focus is on promoting the concepts of non-iterative optimization with respect to counterparts, such as gradient-based methods and derivative-free iterative optimization techniques. Besides the dissemination of the latest research results on randomization-based and/or non-iterative algorithms, it is also expected that this special session will cover some practical applications, present some new ideas and identify directions for future studies.

Original contributions as well as comparative studies among randomization-based methods and non-randomized methods are welcome with unbiased literature review and comparative studies. Typical deep/shallow paradigms include (but not limited to) random vector functional link (RVFL), echo state networks (ESN), liquid state networks (LSN), kernel ridge regression (KRR) with randomization, extreme learning machines (ELM), random forests (RF), and so on.

Topics of the special session include (with randomization-based methods), but are not limited to:
- Randomized convolutional neural networks
- Randomized internal representation learning
- Regression, classification and time series analysis by randomization-based methods
- Kernel methods such as kernel ridge regression, kernel adaptive filters, etc. with randomization
- Feedforward, recurrent, multilayer, deep and other structures with randomization
- Ensemble learning with randomization
- Moore-Penrose pseudo inverse, SVD and other solution procedures

- Gaussian process regression
- Randomization-based methods for large-scale problems with and without kernels
- Theoretical analysis of randomization-based methods
- Comparative studies with competing methods with or without randomization
- Applications of randomized methods in domains such as power systems, biomedical, finance, signal processing, big data and all other relevant areas

Submission format and Guidelines

Papers will be evaluated based on their originality, presentation, relevance and contribution to the development of Randomization-Based Deep and Shallow Learning Algorithms, as well as their suitability and the quality in terms of both technical contribution and writing. The submitted papers must be written in good English and describe original research which has not been published nor currently under review by other journals or conferences. If used, the previously published conference papers should be clearly identified by the authors (at the submission stage) and an explanation should be provided how such papers have been extended to be considered for this special issue. Guest Editors will make an initial determination on the suitability and scope of all submissions. Papers that either lack originality, clarity in presentation or fall outside the scope of the special issue will not be sent for review and the authors will be promptly informed in such cases. Author guidelines for preparation of manuscript can be found at http://www.journals.elsevier.com/applied-soft-computing/ Manuscripts should be submitted online at: **http://ees.elsevier.com/asoc/** and when submitting, authors are asked to select the following submission category: **"VSI: Randomization-based Learning"**

Important dates

VSI Submission Opens: 6th Jan 2020
VSI submission Closes: 30th Sept 2020
Expected Review Duration: 2-3 Months per review cycle.

Guest Editors

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