Call for Papers

Information Fusion, Elsevier (IF: 13.67)

Randomization-Based Deep and Shallow Learning Algorithms

Aim and Scope:

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 issue aims to bridge this gap.

The first target of this special issue 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 issue 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 and non-randomized-based 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), CNN with randomization, and so on. All contributions must include sufficient information fusion contents.

Topics:

The topics of the special issue include (with information fusion contents), 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 using novel fuzzy approaches
- Randomization-based methods for large-scale problems with and without kernels
- Theoretical analysis of randomization-based methods
- Comparative studies with competing methods without randomization
- Applications of randomized methods and information fusion in areas such as power systems, biomedical, finance, economics, signal processing, big data and all other relevant areas

Submission Guideline:

Papers should be submitted using INF's online submission system: https://www.sciencedirect.com/journal/information-fusion. When submitting your manuscript please select the article type "SI: Randomization-based learning algorithms".

Important Dates

- Manuscript submission due: October 01, 2021
- First review completed: January 15, 2022
- Revised manuscript due: March 15, 2022
- Final decisions to authors: April 15, 2022

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