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Cognitive Computation

Special Issue on

Non-Iterative Learning Approaches and Their Applications

Background:

Optimization, which plays a central role in learning, has received considerable attention from academics, researchers, and domain workers. Many optimization problems in machine learning can be tackled with non-iterative approaches, which can be presented in closed-form manner. Those methods are in general computationally faster than iterative solutions. Even though non-iterative methods have attracted much attention in recent years, there exists a performance gap when compared with older methods and other competing paradigms. This special session aims to bridge this gap.
The first target of this special issue is to present the recent advances of non-iterative solutions in learning. 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 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.
Researchers will be invited to submit innovative works or comparative studies with both iterative and non-iterative methods. Typical paradigms include (but not limited to) random vector functional link (RVFL), echo state networks (ESN), extreme learning machines (ELM), kernel ridge regression (KRR), random forests (RF) and so on.

Topics covered:

- *Regression, classification and time series analysis*
- *Kernel methods such as kernel ridge regression, kernel adaptive filters, etc.*
- *Feedforward, recurrent, multilayer, deep and other structures.*
- *Ensemble learning*
- *Moore-Penrose pseudo inverse, SVD and other solution procedures.*
- *Gaussian Process regression*
- *Non-iterative methods for large-scale problems with and without kernels*
- *Theoretical analysis of non-iterative methods*
- *Comparative studies with competing iterative methods*
- *Applications of non-iterative solutions in domains such as power systems, biomedical, finance, signal processing, big data and all other areas*

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Important Dates:

	Dates
Submissions Deadline	**1st July 2018**
First notification of acceptance	1st Nov 2018
Submission of revised papers	1st Jan 2019
Final notification to the authors	1st Mar 2019
Submission of final/camera-ready papers	1st April 2019
Publication of special issue	2019

Requirements:

All papers should follow the manuscript preparation requirements for the Springer Cognitive Computation submissions, see http://www.springer.com/12559. The authors are requested to submit their manuscripts via the online submission manuscript system, available at http://www.editorialmanager.com/cogn/. During submission, authors should explicitly choose **the title of the special issue** in the Subject line.

Further information:

For further (technical) questions, please contact the Editor-in-Chief: ahu@cs.stir.ac.uk