

WCCI 2018 - Call for Papers for Special Session on Non-iterative Approaches in Learning

(Including comparative studies with iterative methods)

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 and less sensitive to parameter settings. 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 session 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.

Original contributions, comparative studies with both iterative and non-iterative methods are welcome. Typical paradigms include (but not limited to) random vector functional link (RVFL), Echo State Networks (ESN), kernel ridge regression (KRR), random forests (RF), etc...

The topics of the special session include, but are not limited to:

- Methods with and without randomization
- 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

Organizers

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Important Dates

- 15th January 2018 – paper submission deadline
- 15th March 2018 – Paper acceptance notification
- 8-13 July 2018 – IEEE WCCI 2018 conference, Rio de Janeiro, Brazil

Paper Submission

Papers submitted to this Special Session are reviewed according to the same rules as the submissions to the regular sessions of WCCI 2018. Authors who submit papers to this session are invited to mention it in the form during the submission. Submissions to regular and special sessions follow identical format, instructions, deadlines and procedures of the other papers.

Please, for further information and news refer to the WCCI 2018 website:

<http://www.ecomp.poli.br/~wcci2018/>.