



"Data-driven Approaches for Complex Industrial Systems"

The Theme: Data-driven methods are a kind of potential pattern to describe various complex behaviors, and have formed an attractive alternative for many complex industrial systems. A distinct feature for data-driven methods is that no a priori information about the process is necessary. Such methods are playing more and more important role on the modeling, control and optimization of complex industrial systems for which the process mechanism-based methods often fail to work due to difficulty in describing unexpected disturbances and weak real-time service.

This Special Section on “Data-driven Approaches for Complex Industrial Systems” is to provide a forum for researchers and practitioners to discuss various data-driven methods with application to complex industrial systems, and to identify critical issues and challenges for future investigation in this field. Topics include, but are not limited to, the following research topics and technologies:

- Data-driven modeling in engineering
- Data-driven controller design for engineering problems
- Data-driven optimization methods for engineering applications
- Data-driven fault diagnosis for engineering problems
- Data-driven decision making in engineering
- Stability analysis for data-driven control systems and their engineering applications
- Robustness analysis for data-driven control systems in engineering
- Hybrid models: Integrating data-driven and first-principle models
- Integrating data-driven and knowledge-based methods in model
- Modeling methods integrating fundamental and data-driven models with experts knowledge

All contributions must focus on the use of Data-driven Methods for Complex Industrial Systems. Results obtained by simulations must be validated in bounds by experiments or analytical results.

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Informatics <http://tii.ieee-ies.org/>
Please submit your manuscript in electronic form through Manuscript Central web site: <http://mc.manuscriptcentral.com/tii>. On the submitting page #1 in popup menu of manuscript type, select: SS on Data-driven Approaches

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Extended versions of papers previously published in conference proceedings may be eligible for consideration if conditions listed in <http://tii.ieee-ies.org/o/PC.pdf> are fulfilled. Before submitting manuscript check the review criteria (<http://tii.ieee-ies.org/o/RC.pdf>) and other information (<http://tii.ieee-ies.org/o/DI.pdf>)

Note: The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion.

Timetable: **Deadline for manuscript submissions** **March 1, 2012**

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