*** Call for Papers ***

Machine Learning, Data Analytics, and Advanced Optimization Techniques in Modern Power Systems

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Transactions on Computer Science & Engineering and Electrical Engineering

Enabling demand side participation, proliferation of electric vehicles, implementation of synchrophasor measurement units, integration of renewable energy units, and other emerging smart grid technologies call for advanced analytical techniques for future modern power systems design, operation, planning, and studies. The emerging technologies make it challenging for traditional methods, but ideal for the application of machine learning, data analytics, and advanced optimization techniques. By harnessing their capability in processing complex systems and making better decisions, machine learning, data analytics, and advanced optimization techniques can help in solving emerging problems of modern power systems. The use of these techniques can be the key to realize potential benefits of the emerging technologies as well as to avoid deleterious outcomes caused by their unsupervised integration and operation. However, yet, insufficient effort has been devoted to applying these techniques to the problems regarding modern power systems.

The focus of this special issue is high quality, up-to-date technologies and solutions related to machine learning, data analytics, and advanced optimization techniques for solving problems in modern power systems. The special issue serves as a forum for researchers all over the world to discuss their works and recent advances in this field. In particular, the special issue is going to showcase the most recent achievements and developments in application of machine learning, data analytics, and advanced optimization techniques in modern power systems. Both theoretical studies and state-of-the-art practical applications are welcome for submission. All submitted papers will be peer-reviewed and selected on the basis of both quality and relevance to the theme of this special issue. Potential topics of this special issue include, but are not limited to, application of machine learning, data analytics, and advanced optimization techniques in:

- Large-scale integration of renewable energy resources, electric vehicles, and storage systems
- Pattern recognition, clustering, and forecasting of load components and renewable generations
- Smart energy management devices and algorithms
- Power market and transactive energy operation
- Monitoring, protection, and control of distribution and transmission systems
- Real time power systems dynamic and stability analysis
- Asset management and component state of health assessment
- Cyber-security threats and countermeasures
- Risk-, reliability-, and resilience-focused studies
- Operation and planning optimizations
Important Dates:

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- Authors are requested to prepare and submit their full papers in accordance with the SCIENTIA IRANICA guidelines. ([http://scientiairanica.sharif.edu/PDF/NotesforContributors.pdf](http://scientiairanica.sharif.edu/PDF/NotesforContributors.pdf)).
- Please NOTE that SCIENTIA IRANICA does not require publication charges.
- The direct link for the submission of papers is: scientiairanica.sharif.edu
- Along with the manuscript submission, the corresponding author has to send a cover letter specifying that the submission is for Special Issue on “Machine Learning, Data Analytics, and Advanced Optimization Techniques in Modern Power Systems.”

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