**The Fourth International Workshop on Data Analytics for Renewable Energy Integration (DARE 2016) – in conjunction with ECML/PKDD 2016, Riva del Garda, Italy. 23$^{rd}$ September, 2016**



## Call for Papers

Concerns about climate change, energy security and dwindling fossil fuel reserves are stimulating ever increasing interest in the generation, distribution and management of renewable energy. While a lot of attention has been devoted to generation technologies, an equally important challenge is the integration of energy extracted from renewable resources into existing electricity distribution and transmission systems. Renewable energy resources like wind and solar energy are often spatially distributed and inherently variable, necessitating the use of computing techniques to predict levels of supply and demand, coordinate electricity distribution and manage the operations of energy storage facilities.

A key element of the solution to this problem is the concept of a "Smart Grid". There is no standard definition but a smart grid is broadly perceived as an evolved form of the traditional electricity grid where advanced techniques such as Information and Communication Technology (ICT) are used extensively to detect, predict and intelligently respond to events that may affect the supply of electricity.

Data analytics is a science that encompasses data mining, machine learning and statistical methods, and which focuses on cleaning, transforming, modeling and extracting actionable information from large, complex data sets. A smart grid generates a large amount of data from its various components, examples of which include renewable energy generators and smart meters; the potential value of this data is huge but exploiting this value will be almost impossible without the use of proper analytics. With the application of systematic analytics on the smart grid's data, its goals of better economy, efficiency, reliability, and security can be achieved. A further consequence of this process is the steady growth in the complexity and connectedness of critical energy infrastructure. This trend, coupled with the rapid growth in computing power and an increasingly diverse threat landscape, has led to pressing concerns about the vulnerability of these installations to cybersecurity attacks from a range of state and non-state actors. It seems certain that intelligent algorithms and data analytics will be an important part of the solution if these problems are to be effectively countered.

The focus of this workshop is to study and present the use of various data analytics techniques in the different areas of renewable energy integration. Authors are invited to submit their original and unpublished research contributions to this workshop in areas relevant to the application of data analytics for renewable energy integration including but not limited to the following:

**Scope**

- Data analytics for renewable energy sources
- Smart Grid applications of data analytics

- Data analytics for power generation, transmission, and distribution
- Smart grid cyber security
- Intrusion detection
- SCADA/DCS data analytics
- Fault detection, classification, location, and diagnosis
- Power quality detection
- Power system state estimation
- Load forecasting, wind power forecasting, and PV power forecasting
- Islanding detection
- Demand response
- Customer profiling and smart billing
- Parallel and distributed data analytics for renewable energy integration
- Big data and cloud-based analytics for renewable energy integration

## Paper Submission

Two types of submissions are invited:

- Full papers (Maximum 12 pages, including title page and bibliography)
- Short position papers (Maximum 6 pages, including title page and bibliography)

Submitted papers will be peer-reviewed and selected on the basis of these reviews. Accepted papers will be presented at the workshop and published in the workshop proceedings.

**Papers accepted to DARE 2016 will be published as a Springer LNAI post-proceedings volume**.

For manuscript submission, please use the EasyChair site at:

https://easychair.org/conferences/?conf=dare2016

Manuscripts should adhere to the guidelines of Springer LNCS/LNAI format (http://www.springer.com/computer/lncs?SGWID=0-164-6-793341-0)


## Key Dates

- Workshop paper submission deadline: Monday, July 18, 2016 (extended)
- Workshop paper acceptance notification: Monday, July 25, 2016
- Workshop paper camera-ready deadline: Monday, August 8, 2016
- Workshop day: Friday, September 23, 2016

More details regarding the workshop are available from the website: http://dare2016.dnagroup.org