



CALL FOR PAPERS



Special Issue of the
International Journal of Prognostics and Health Management

Big Data and Advanced Analytics for PHM

SPECIAL ISSUE EDITORS

Neil Eklund, Ph.D.

Chief Data Scientist, Schlumberger; neil eklund@gmail.com

Hank Roark

Director, Customer Data Science, H2O.ai; hroark@alum.mit.edu

Mohak Shah, Ph.D.

Head of Data Science, Bosch Research; mohak@mohakshah.com

Abhishek Srivastav, Ph.D.

Machine Learning Researcher, GE Global Research; srivastav@ge.com

Weizhong Yan, Ph.D.

Principal Scientist, GE Global Research; yan@ge.com

editorial e-mail: editor@ijphm.org



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The International Journal of Prognostics and Health Management (IJPHM) is the premier *online open access journal* related to multidisciplinary research on Prognostics, Diagnostics, and System Health Management. This special issue is focused on research advances in Big Data and Advanced Analytics pushing the envelop of machine intelligence in the digital industrial world.

The past ten years have witnessed a revolution in computer science and statistics. Neural networks have risen from obscurity as a collection of innovative new techniques known as *Deep Learning*, and are achieving human-level performance in image recognition and game playing. New hardware configurations and novel approaches, collectively known as *Big Data*, have been developed to effectively deal with the torrent of data from nearly ubiquitous sensors. The *Cloud Computing* business model has arisen, making shared, configurable, and elastic computing resources available on demand as needed. Finally, a niche discipline of *Industrial Analytics* has emerged, characterized by predictive analytics and optimization for fleets of similar assets – e.g., aircraft engines, subsea oil pumps, computed tomography scanners. One challenge lies in combining irregularly occurring free-text maintenance and repair records and usage logs with regularly sampled but intermittent time series of control system, environmental, and usage data.

These four trends – Deep Learning, Big Data, Cloud Computing, and Industrial Analytics – will undoubtedly have a profound effect on the research and application of PHM, and people already doing work in this area are truly on the cutting edge of the science. This CFP solicits papers advancing Deep Learning, Cloud Computing, Big Data, and Industrial Analytics for PHM. Papers describing both novel applications of these techniques and related theory are encouraged.

PHM Topics of Interest:

- PHM techniques and metrics
- Advanced sensing, sensor fusion, and analysis
- Data collection, management, and dissemination
- Test scenarios and use cases of PHM techniques
- Uncertainty quantification, verification and validation of PHM techniques
- Human performance and reliability issues
- Condition monitoring of equipment and processes
- Hierarchical scheduling and control through equipment- to factory-wide PHM
- Predictive and risk-based maintenance practices
- PHM applications within manufacturing (e.g. machine tools, robotics)
- Integration of PHM elements into new and legacy systems

Submission Types:

Full-Length Regular Papers: Regular papers should describe new and carefully confirmed findings. Experimental procedures and results should be given in detail sufficient for others to replicate the work.

Technical Briefs: Technical briefs describe a single result, experiment, or technique of general interest in short manuscripts enough to describe experimental procedures and clearly, and interpret the results in the context of other research.

Industry Case Studies: Case studies are descriptive accounts of PHM applications in a real industrial environments. Techniques and apparatus used, results obtained, and lessons learned can be included to share experience with the community.

Survey Papers: Survey papers are of a tutorial or review nature covering emerging research topics in PHM or describe the best current practice, detailed characteristics and performance. These papers cover areas of general interest.

Submission Instructions: Please submit your manuscripts directly by going to the society webpage and follow instructions for journal submissions. There you will find an option to select the “Advanced Analytics & Big Data” special issue.

Invitation to Present: Accepted papers are eligible for podium presentation at Annual Conference of the PHM Society, Denver 2016, Colorado Springs, CO, USA

Abstracts/NOIs Due: April 2, 2016

Deadline for Submission: 15 June 2016 (Please refer to the website for a detailed timeline)