

## "Deep Learning Models for Industry Informatics"

**The Theme:** Deep learning is a novel research direction in machine learning field. In recent years, it has made breakthrough progress in many applications such as speech recognition, computer vision, industrial control and automation etc. The motivation of deep learning is to establish a model to simulate the neural connection structure of human brain. While dealing with outside complex signals, it adopts a number of transformation stages to give the in-depth interpretation of the data. Shallow learning is to rely on the artificial experience to extract the characteristics of the sample datasets, and the network model is obtained after the study which has no hierarchical structure; while the deep learning treats the original signal with layer by layer feature transformation, and transforms the feature representation of the sample in the original space into the new feature space, and automatically learns the hierarchical representation of the feature, which is more conducive to the classification or feature visualization. Deep learning achieves exceptional power and flexibility by learning to represent the task as a nested hierarchy of layers, with more abstract representations computed in terms of less abstract ones. The current resurgence is a result of the breakthroughs in efficient layer-wise training, availability of big datasets, and faster computers.

It is expected that the development of deep learning theories and applications would further influence the field of industry informatics. This special issue mainly focuses on deep learning models for industry informatics, addressing both original algorithmic development and new applications of deep learning. We are soliciting original contributions, of leading researchers and practitioners from academia as well as industry, which address a wide range of theoretical and application issues in deep learning for industry informatics. Topics for this special issue include, but are not limited to:

### Topics include, but are not limited to, the following research topics and technologies:

- Deep learning for Internet-based monitoring and control systems
- Deep learning for collaborative factory automation
- Deep learning for distributed industrial control and computing paradigms
- Deep learning for real-time control software for industrial processes
- Deep learning for control of wireless sensors and actuators
- Deep learning for systems interoperability and human machine interface
- Deep learning for industrial focused software development
- Deep learning for reusable analytics tools and frameworks
- Deep learning for urban informatics
- Deep learning for statistical tools for electric machine and drives condition monitoring
- Deep learning for DSP and FPGA-based system implementation
- Deep learning for industrial system security and intrusion

### Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transaction on Industrial Informatics:

<http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics>

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 **Deep Learning Models for Industry Informatics**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages, additional 4 pages may be allowed for a fee.

**Note:** The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published

**Timetable:** **Deadline for manuscript submissions** **September 30, 2017 (Extended to Nov. 30, 2017)**  
**Expected publication date (tentative)** **June 2018**

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