WIRN 2017 27th Italian Workshop on Neural Networks,

Special Session on Computational Intelligence in the context of Industry 4.0

June 14-16, 2017 - Vietri sul Mare, Salerno, Italy

https://wirn2017.polito.it/

http://www.associazionesiren.org/home/

Instructions on how to reach the Conference Location are on www.iiassvietri.it

The proposed Special Session is devoted to the latest progresses of computational intelligence (CI) for Industry 4.0, the first a-priori engineered and the fourth Industrial Revolution. The digitalisation of all the industrial sectors represents a radical change that is transforming the way the processes are being developed and the work is being pursued inside the companies. Industries are currently facing four main scientific and technological challenges:

- the increase of data volume, the computing power and connectivity;
- the development of analytics and business intelligence solutions;
- new forms of human-machine interaction such as touch interfaces and the augmented reality systems;
- the improvement in the transfer of digital instructions to the real world, such as advanced robotics, IoT solutions and 3D printers.

For these reasons classical and novel Computational Intelligence (CI) approaches, among which Artificial Neural Networks (ANN), which have been developed exactly to extract (hidden) information from data for pattern recognition, classification and prediction subjects, find an obvious context of application. Such techniques have an enormous potential to offer a clear enhancement of many transformation processes, as well as to services such as logistic, personnel training and marketing.

Also, computational intelligence, mainly including artificial neural network and learning systems evolutionary computation, and fuzzy logic and systems, is a set of nature-inspired modelling and optimisation techniques to complex real-world issues, to which classical approaches (e.g. first principles modelling and statistical) are unproductive or incapable of addressing.

The objective of this special session is to collect contributions, which prove the success of suitable ANN-based machine learning and CI techniques in the industrial context. The innovative papers or reviews should address how to revolutionise the way that smart designs are generated thereby leading to a step enhancement in manufacturing. The papers could also concentrate on a comparison between novel techniques and state-of-the-art approaches by accentuating the reached benefits. Topics of the special session contain (but are not limited to) application of ANNs and additional CI techniques for:

- Fault diagnosis and forecasting
- Machine learning for cyber-physical systems
- Machine learning or intelligent search for Industry 4.0
- Product quality and process forecasting
- Embedded neural systems
- Smart maintenance systems
- Hybrid modelling systems
- Big Data & Analytics

- Process Simulation
- Data pre-processing and filtering
- Knowledge management
- Audio and image data processing
- Process optimization and scheduling
- Production planning and scheduling
- Reconfigurable, adaptive production systems
- Data mining and knowledge discovery
- Process simulation, monitoring or control
- Evolutionary distributed or cloud computing for interactive product design and marketing
- Evolutionary big data interaction for predictive product design and marketing

Session Chairs and Contacts

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Important Dates

- First Paper Submission: April 16 2017
- Notification of acceptance: May 16, 2017
- Camera-ready copy: June 14 2017
- Conference Dates: June 14-16, 2017

Publication and Page Limitations

The accepted contributions will be published on the Springer series on "Smart Innovation Systems and Technologies" (see http://www.springer.com/series/8767 for the download of the paper format).
The paper's maximum length   paper is 8 -10 pages. The manuscripts should be submitted by connecting to Easy Chair conference system: https://easychair.org/conferences/?conf=wirn2017.
Log through your Easy Chair account or register for it and log in. Specify the name of the special session you want to submit your paper

Registration Fee

The registration fee to join the conference is **250 euros** and include the social dinner. Registration can be done on site (using cash) or through bank transfer (the receipt must be exhibited at the conference).
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