A.   Overview

Industry is undergoing the so-called "fourth revolution" with a trend towards fully automated cyber-physical systems (CPS) and an augmented data exchange provided by the internet of things (IoT). This revolution is highly correlated and supported by an increasing adoption of machine learning techniques that allow, on the one hand, to generate valuable predictions for the daily work in smart factories, and on the other hand, to help the operators make the right decisions, or even to take decisions on their own.

While research in machine learning is rapidly evolving, the transfer to industry is still slow. To overcome this issue, researchers and factories must work together to get the most of both sides. This way, industries can add value to their data and processes, and researchers can study ways of facilitating the application of theoretical results to real world scenarios.

The aim of this special issue is to integrate cutting edge research from the fields of machine learning & deep learning into industrial production and manufacturing processes, to leverage their technological transformation towards the new era of smart factories. We cordially invite researchers to contribute original research papers that report novel systems, applications, as well as survey papers that review the novel technologies and new trends on the intersection between these two areas. A strong focus should be on applicability and transferability, so that the interested readers should find it easy to reproduce and replicate the published results of the paper into their own use industrial cases.

Topics appropriate for this Special Issue include, but are not necessarily limited to:

- Anomaly detection for CPSs and IoT.
- Machine learning-based decision support systems for CPSs and IoT
- Complex Event Processing supported by machine learning.
- Representation learning for industrial data streams.
- Process mining supported by machine learning.
- Clustering and classification of industrial data streams or time series.
- Data mining and knowledge discovery in real world databases from an industry.
- Modelling industrial data streams through Probabilistic Graphical Models.
- Forecasting industrial data streams.
- Industrial ML-based Applications for IoT

B. Important Dates

- **Submission deadline:** ~~March 31, 2021~~, **December 31, 2021**
- **Pre-screening notification:** ~~April 15, 2021~~, **January 15, 2022**
- **First round notification:** ~~July 15, 2021~~, **April 15, 2022**
- **Revision due:** ~~September 15, 2021~~, **June 15, 2022**
- **Final notification:** ~~October 15, 2021~~, **July 15, 2022**
- **Final Manuscript due:** ~~December 15, 2021~~, **September 15, 2022**
- **Tentative publication date:** ~~December 31, 2021~~, **October 15, 2022**

Instructions for Manuscripts:

Please note that the authors need to submit their new and revised manuscripts at the new REX site, submission.wiley.com/journal/exsy. It is strictly for authors only. You will be assigned manuscripts via scholar one, and the review process will still be done in *scholarOne* at https://mc.manuscriptcentral.com/exsy. Both the systems are synced and the MS submitted in REX will be accessible to you in manuscript central. The SI selector is in the "additional information" tab. After the authors select that the submission is for the special issue, they need to select the SI title, "EXSYS-MLI4.0" from the dropdown.

Submitted papers must be unpublished and not submitted anywhere else for publication. If a shorter version of the paper has been accepted or published in a conference, then the submission must contain at least **80%** new material as compared to the conference publication this must be mentioned when submitting the paper, as well as the name of the conference and the title of publication.

The ***EXSYS-MLI4.0*** Special Issue will be based on submissions attracted by:

A) Open call, which commits with previous conditions.
B) Invitation of selected papers that were accepted and presented at: **IDEAL** conference and their joint workshops, **IDC**, and **PPSN**. These submissions must differ at least **80%** from the initial versions published in the conference proceedings.

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