



## Open Invited Track on *Hybrid Intelligence for Complex Industrial Environments*

### Organised by:

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In the last decades, digitization has reached nearly all aspects of industrial facilities, enabling continuous measurements as well as digitally driven communication and coordination. An ever-larger body of data creates both challenges and opportunities for industrial control, as it enables and requires ever faster data processing and decision-making. Human operators are faced with increasingly complex and dynamic problems, prompting an increased occurrence of decisions tainted by cognitive biases. Various forms of cognitive biases can affect human operators, leading to irrational or inaccurate decision. Novel machine learning techniques can support human decision-making, but their quality is directly linked to the underlying training data, as biased data translates to biased decisions.

Hybrid intelligence refers to the combined application of human and machine intelligence as a collective intelligence, enabling both intelligence to learn from each other, facilitating a growth beyond their inherent and isolated capabilities. Thus, the combined application allows for complex problem solving based on different core competencies. A collective hybrid intelligence can be composed of various human operators and artificial intelligence, allowing for synergetic growth and integrated feedback loops to correct undesired developments. This process also allows for the comparison with traditional and deterministic optimization approaches, and for the application of domain knowledge in order to combine apt machine learning models with suitable input.

This session aims to explore recent advances in conceptualization, modeling and implementation of hybrid intelligence in the context of industrial control. In particular, comparisons to established decision-making processes and deterministic algorithms as well as research on cognitive biases are of interest. Thus, topics may include, but are not limited to:

- Decision-making processes in Production Planning and Control (PPC);
- Decision-making processes in Supply Chain Networks (SCM);
- Optimization in PPC and SCM;
- Cognitive Biases;
- Biased decision-making;
- AI-based and Hybrid Intelligence Approaches;

For author guidelines, please refer to [www.ifac-control.org](http://www.ifac-control.org). All papers must be submitted electronically at <https://ifac.papercept.net/>. All papers must be prepared in a two-column format in accordance with the IFAC manuscript style. Please use the official IFAC instructions and template to prepare your contribution as full-length draft paper and submit it on line. Submission details are available on the conference website. All submissions must be written in English. All papers that conform to submission guidelines will be peer-reviewed by IPC members.

The corresponding authors need to submit their paper online (pdf format) as Open Invited Track Paper using the following code **g7qvw**

### **Important dates:**

- Draft paper submission: 30st November 2024
- Notification of acceptance: 30th January 2025
- Final paper submission: 28th February 2025