



# ICONIP 2023

November 20-23, 2023, Changsha, China

## Invited Session Proposal for ICONIP2023

**Title:** Engineering applications of hybrid artificial intelligence tools

**Description:**

The interest in artificial intelligence leads to the consolidation of the activities of scientists and the education of the best experts in this field, so that the work of independent global centers can inspire their creators and find business applications faster. The development of simulation environments with a standardized API interface will allow for the collection of a large amount of data collected when interacting with the environment through the use of AI methods in the branches of management, automation, robotics, autonomous vehicles or energy consumption control. The use of fuzzy logic methods, evolutionary calculations and neural networks in intelligent decision support and control systems, including e.g. intelligent systems and machine learning methods for searching and processing information and supporting decision-making allow for optimal design of engineering systems. It seems important to use deep machine learning methods to recognize early symptoms of damage to physical objects based on the activity of their real processes, and to automatically detect anomalies in multidimensional production systems. Research on machine learning, statistical inference, and information theory, including variable selection methods in high-dimensional classification problems, will allow for smooth communication and detailed data exchange in algorithmic AI systems.

**Topics include (but are not restricted to):**

- Learning strategy,
- Distributed optimization algorithms design and analysis,
- Data-based modeling and control for optimization complex system,
- Intelligent technologies for optimizing discrete processes,
- Intelligence technologies for Human-computer interaction,
- Multi-task and multi-objective optimization,
- Artificial intelligence applications for software engineering,
- Knowledge management in software projects,
- AI-centered Systems and Large-Scale Applications,
- Evolutionary Algorithms and Evolutionary Computation,
- Neural Networks and Deep Learning,
- Hybrid and Hierarchical Intelligent Systems,
- Hybrid artificial intelligence tools,
- Multi-Agent Systems,

- Knowledge Representation and Management,
- Preprocessing of industry processes data for DNN,
- AI for eye tracking technology,
- Intelligent scheduling for discrete processes.

**Proposers:**

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