



ICONIP 2023

November 20-23, 2023, Changsha, China

Invited Session Proposal for ICONIP2023

Title: Distributed Control and Optimization of Constrained Networked Complex Systems

Description:

Due to the rapid development of computing, communication and sensing technology, networked complex systems become more and more ubiquitous in real life. Their applications can be found in areas such as mobile sensor networks, autonomous vehicle formations, intelligent transportation systems, smart grids and so on. The large scale of the networked complex systems presents grand challenges for designing effective control and optimization strategies for these systems. Furthermore, complex dynamics and uncertain environment usually prevent accurate modeling of the interconnected systems. How to achieve intelligent distributed coordination and optimization in face of various agent dynamics constraints and communication limitations has become a central topic in recent years. This invited session will focus on new analysis and synthesis approaches for intelligent control and optimization of practical constrained networked complex systems. Research on various aspects of intelligent distributed control and optimization such as data-based modeling, distributed controller design, new optimization algorithms and real world applications will be welcomed. It aims to provide an international forum for researchers in various fields such as applied mathematics, social science, control engineering, as well as computer science to present, share, and summarize the most recent developments and ideas on related topics.

Topics include (but are not restricted to):

- Distributed cooperative control of multiple autonomous vehicles
- Distributed optimization algorithms design and analysis
- Distributed nonconvex optimization
- Online distributed optimization
- Data-based modeling and control for networked complex systems
- Fully distributed cooperative control and optimization
- Adaptive cooperative control and optimization
- Learning based robust cooperative of networked systems
- Game theory and analysis
- Reinforcement learning based cooperative control
- Distributed cooperative control applications

Proposers:

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