

DOCS2022 Invited Session Proposal

Title: Reinforcement Learning-based Control and Optimization for Complex Systems

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Description: Complex systems, which are composed of many interconnected and interactive functional parts, widely exist in the nature and human society. Great efforts need to be made to reveal the relationship between the system structure and its function, evolution and regulation from both theoretical and practical points of view. Moreover, modern systems, such as social systems, industrial systems, transportation systems, ecosystems, communication systems, urban traffic systems, power systems, become complex and large-scale since the increasing demands of high quality and efficiency. This brings new challenges to optimization, intelligent control, analysis and integration of modern complex systems.

Since tremendous data offers an extremely effective way to harvest and reveal valuable knowledge in growing hidden information, the data-driven technology plays an important role in system analysis and integration, and becomes an active research area in systems science and engineering. This invited session aims to share most recent advances in data-based analysis and integration of complex systems. The targeted audience includes both academic researchers and practitioners. Potential topics of this invited session include, but are not limited to the following research areas:

- Data-based structural modeling, prediction for complex systems
- Data-based analysis and integration of complex systems
- Learning based optimization, regulation and control for complex systems
- Data-based decision-making and pattern recognition
- Data-based applications in:
 - Process industries
 - Image/video processing
 - Robotics, navigation and control
 - Games
 - Autonomous driving
 - Others

Important Dates:

- Paper submission deadline: February 15, 2022
- Notification of acceptance: March 15, 2022
- Camera-ready copy and author registration: April 15, 2022
- Conference: May 27-29, 2022