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Call for Papers: Special Issue on Intelligent Optimization, Modeling, and Simulation with Knowledge for Complex Systems

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1 Theme

Due to various complexities in real-world industry and service systems, many optimization problems cannot be solved effectively by traditional methods. Intelligent optimization, modeling, and simulation, including evolutionary computation and swarm intelligence, have been successfully applied to complex systems in a variety of engineering fields. To enhance the optimization capability when solving particular problems, it is very important to incorporate knowledge in the intelligent algorithms. Intelligent optimization with knowledge is concerned with the use of the problem specific properties and the prior information for the strategy design in the framework of intelligent optimization. The key issues of intelligent optimization with knowledge include knowledge representation, knowledge utilization, model management, strategy design, learning mechanism, and the related control scheme. During the past few years, increasing attention has been paid to the theoretical analysis, algorithm design, and performance improvement of the knowledge fusion optimization as well as a wide range of applications in complex engineering systems. This special session intends to give the state-of-the-art of the intelligent optimization with knowledge for complex systems. It aims to provide a platform for researchers to share innovative work in this area. Interdisciplinary methodologies may be given based on the innovative intelligent optimization and knowledge engineering for complex systems.

2 Scope of Topics

This special session is to promote the most recent developments of intelligent optimization, modeling, and simulation with knowledge for complex systems. The topics include, but are not limited to

- Knowledge representation and knowledge utilization in intelligent optimization, modeling, and simulation
- Reinforcement learning based intelligent algorithms for complex systems
- Theoretical analysis knowledge fusion intelligent optimization
- Intelligent algorithms with knowledge for multi-objective optimization problems
- Intelligent algorithms with knowledge for uncertain optimization problems
- Intelligent algorithms with knowledge for simulation optimization problems
- Intelligent algorithms with knowledge for constrained optimization problems
- Applications of intelligent optimization with knowledge in industry and service systems
- Survey of intelligent optimization, modeling, and simulation with knowledge

3 Guest Editors

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4 Important Dates

Manuscript submission due: 15 Jan 2022

First review completed: 15 Mar 2022

Revised manuscript due: 15 May 2022

Second review completed: 15 Jun 2022

Possible Publication: Aug 2022

5 Submission Guidelines

Manuscripts should be submitted through the publisher's online system at https://mc03.manuscriptcentral.com/csms-tup. Please follow the instructions described in the submission website. Please make sure you select "**Special Issue on Intelligent Optimization, Modeling, and Simulation with Knowledge for Complex Systems**" as Article Type. In preparing the manuscript, the authors are asked to closely follow the "Instructions to Authors". Submissions will be reviewed according to CSMS rigorous standards and procedures through a peer review by at least two qualified reviewers.

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