

**2019 IEEE/SICE**  
**International Symposium on System Integration**  
**(SII2019)**

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**Special Session on**

**“Advances of Simulation Optimization and its Applications”**

**organized by**

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Abstract of proposed special session:

Stochastic simulation is a powerful modelling tool for analyzing complex systems when closed-form analytical models provide poor estimations due to the modelling assumptions. Indeed, simulation makes it possible to reproduce the system dynamics by means of logically complex, and often nonmathematical models. Healthcare systems, electric power grids, air and land traffic control systems, communication networks, manufacturing plants and supply chains are all examples of complex systems to which simulation can be applied. When simulation is coupled with search algorithms, it enables the solution of complex optimization problems. Such a coupling is referred to simulation-based optimization.

Although the advance of computer technology has dramatically increased computational power, thus reducing the time required to run simulation models, efficiency remains a significant concern for simulation-based optimization. On the one hand, the solution space can be extremely large, and this is even more challenging when little is known and can be exploited about the structure of the solution space. On the other hand, simulation experiments are typically both expensive and time-consuming in practice, and acquiring a good estimate for the performance of a solution usually requires a large number of simulation samples.

These observations explain the increasing popularity of research in efficient simulation-based optimization methods.

The goal of this special session is to provide some recent developments in the methodology of simulation-based optimization as well as their real-world applications.

Topics of interest include, but are not limited to:

- Simulation modelling
- Random search methods
- Ranking and selection
- Metaheuristics
- Optimal learning
- Data-driven decision making
- Metamodels
- Real-world case studies

**Submissions Procedure:** All the instructions for paper submission are included in the conference website <http://www.sii2019.org> . A good quality paper may be considered for publication in IEEE Transactions on Industrial Informatics subjects to further rounds of review