**DOCS’2022-Special Session Proposal**

**“Learning-based optimization and application”**

The increasing complexity of optimization problems poses more challenges to the design of evolutionary algorithms. If one evolutionary algorithm can learn to promote its evolution process, more satisfactory solution will be obtained. Therefore, the evolutionary computation community is very desired to develop learning-based optimization methods that can efficiently guide population evolution according to the multifaceted needs and nature of optimization problems. Feature learning, feature selection, feature extraction, fitness landscape analysis, surrogate models, and machine learning are the representative techniques in designing learning-based optimization methods. The aim of this special session is to provide a forum for researchers and practitioners to exchange the latest advances in theories, technologies, and practice of learning-based optimization.

**Topics**

Topics of interest include but are not limited to:

* Learning-based evolutionary algorithms
* Learning-based adaptive algorithms
* Optimization based on surrogate techniques
* Optimization based on fitness landscape analysis
* Optimization based on machine learning
* Learning-based optimization for expensive, multi-modal, and constrained problems
* Learning-based feature selection, feature construction, and feature extraction
* Performance evaluation in learning-based optimization
* Theoretical studies on the behaviors of learning-based optimization
* Learning-based optimization for real-world applications

**Important Dates**

Paper submission: February 15, 2022

Notification of acceptance: March 15, 2022

Camera-ready copy and author registration: April 15, 2022

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