

INTERNATIONAL JOURNAL FOR

# Simulation and Multidisciplinary Design Optimization

## Call for papers

Topical Issue on  
*Modelling and Optimization of Complex Systems with  
Advanced Computational Techniques*

Edited by

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## Background

The topical issue on "Modelling and Optimization of Complex Systems with Advanced Computational Techniques" focuses on the application of artificial intelligence (AI) and computational methods in the modelling, simulation, and optimization of complex systems. Complex systems are characterized by nonlinearities, uncertainty, and multiple interacting

components, making their behaviour and dynamics challenging to predict and control. The use of AI and computational methods has the potential to significantly improve our understanding of these systems and enable us to develop more effective and efficient solutions for a wide range of engineering applications.

One of the current challenges in this field is the development of robust and scalable computational methods that can effectively handle the complexity of real-world complex systems. Additionally, there is a need for the integration of AI and computational methods with domain-specific knowledge to achieve better results in modelling and optimization. Another challenge is the integration of these techniques with big data analytics to handle the growing volume of data generated by complex systems.

## **Aims and Scope of the Themed Issue**

The aims of this topical issue are to provide a comprehensive overview of the latest advances in AI and computational methods for the modelling and optimization of complex systems. The scope of the topical issue includes original research articles, review articles, and technical reports that demonstrate the use of AI and computational methods in solving complex problems. We encourage submissions that focus on the development of new techniques and the integration of existing methods to achieve improved results. We also especially welcome submissions that address the current challenges in the field and provide novel solutions. This topical issue will serve as a valuable resource for researchers, practitioners, and students who are interested in this rapidly evolving field.

### Potential topics to be covered:

- Machine learning approaches for complex systems modelling and optimization
- Multi-objective optimization for complex systems design and control
- Data-driven modelling and simulation of complex systems
- Hybrid AI and optimization methods for multi-disciplinary complex system design
- Predictive maintenance of complex systems using AI and computational methods
- Evolutionary algorithms for the optimization of complex systems
- AI-based reliability analysis and optimization of complex systems
- Computational intelligence methods for the prediction and control of complex system dynamics.
- Optimization for complex engineering applications.

## **Submissions**

All relevant papers will be carefully considered, vetted by a distinguished team of international experts, and published in accordance to the **Journal's standard policies**. Full research papers and comprehensive review articles can be submitted online via the journal's submission and peer review site.

Instructions for Authors at: <https://www.ijsmdo.org/author-information/instructions-for-authors>

## Article Processing Charges

For accepted articles submitted in 2023, the journal uses the Liberty APC model, a ‘Pay What You Want’ model whereby authors can choose their own fair price to publish an article in Open Access. This allows authors to publish regardless of their level of funding. Authors can select the amount that they will pay on acceptance of their article beginning from 700 €.

The journal does not have any submission fee.

➤ *Special discount concerning this Topical Issue*

For this topical issue, an exceptional minimum Article Processing charge is proposed: 400 €. Authors who will have their paper accepted, must contact the editorial office at [contact-smdo@edpsciences.org](mailto:contact-smdo@edpsciences.org) to receive a reduction code to be used in the submission system.

## Other Waivers and Discounts

- EDP Sciences provides a waiver to authors based in countries included in Group A of the Research4Life programme
- EDP Sciences has signed with the Technische Informationsbibliothek (TIB) a German National APC agreement. Corresponding authors affiliated with German academic institutions including universities and research institutions, can publish in open access at a 20 percent discounted APC price.
- Corresponding authors from French institutions having signed the National Open Access agreement in France, can publish in Open Access **without any fee**.

## Submission deadline – December 31<sup>st</sup> 2023

Article submission and editorial system [here](#).

## Abstracting/indexing

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