Special Issue

Machine Learning Techniques and Surrogate Models in Designing, Optimizing, and Analyzing Engineering Systems

Message from the Guest Editor

This Special Issue focuses on the application and advancement of machine learning techniques and surrogate models in the design, optimization, and analysis of engineering systems. Traditional physical models, such as the finite element method and computational fluid dynamics, remain essential but are often computationally expensive. To accelerate these processes, methods including support vector regression, Kriging, artificial neural networks, and polynomial regression have been widely explored. However, no single technique demonstrates universal effectiveness across all engineering domains. Their adaptability must be carefully validated, and further improvements are required to address complex and specialized problems. We invite contributions that investigate novel methodologies, comparative studies, and innovative applications of machine learning and surrogate models in diverse areas such as mechanical, electrical, and civil engineering. Submissions emphasizing methodological advances and domain-specific adaptations are particularly welcome.

Guest Editor

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The journal *Mathematics* publishes high-quality, refereed papers that treat both pure and applied mathematics. The journal highlights articles devoted to the mathematical treatment of questions arising in physics, chemistry, biology, statistics, finance, computer science, engineering and sociology, particularly those that stress analytical/algebraic aspects and novel problems and their solutions. One of the missions of the journal is to serve mathematicians and scientists through the prompt publication of significant advances in any branch of science and technology, and to provide a forum for the discussion of new scientific developments.

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