



## Navigating Complexity: Advanced Optimization Techniques for Machine Learning

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### Message from the Guest Editors

Dear Colleagues,

The rapid advancements in machine learning have brought forth complex challenges that necessitate equally advanced optimization techniques. As machine learning finds applications in diverse sectors such as healthcare, finance, and autonomous systems, the need for optimized algorithms becomes crucial. Traditional optimization methods often fall short in navigating the high-dimensionality, non-convexity, and real-time requirements of modern ML problems. This Special Issue aims to explore the frontier of optimization techniques designed to address these complexities in ML applications. Potential topics include, but are not limited to: advanced gradient descent variants in ML, Smith-objective optimization for hyperparameter tuning, meta-learning for algorithmic optimization, Bayesian optimization in ML, optimization under uncertainty and indeterminacy in ML, soft computing approaches for ML optimization, scalability challenges in ML optimization, real-world applications of optimized ML algorithms, and performance analysis of new optimization techniques in ML.

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*Guest Editors*





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## Message from the Editor-in-Chief

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