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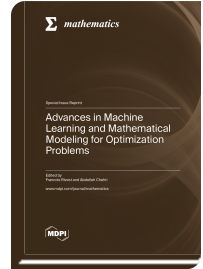


*Special Issue Reprint*

## **Advances in Machine Learning and Mathematical Modeling for Optimization Problems**

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Machine learning and deep learning have made tremendous progress over the last decade and have become the de facto standard across a wide range of image, video, text, and sound processing domains, from object recognition to image generation. Recently, deep learning and deep reinforcement learning have begun to develop end-to-end training to solve more complex operation research and combinatorial optimization problems, such as covering problems, vehicle routing problems, traveling salesman problems, scheduling problems, and other complex problems requiring general simulations. These methods also sometimes include classic search and optimization algorithms for machine learning, such as Monte Carlo Tree Search in AlphaGO. The present reprint contains all of the articles accepted and published in the Special Issue of *Mathematics* entitled "Advances in Machine Learning and Mathematical Modeling for Optimization Problems". The articles presented in this Special Issue provide insights into related fields, including models, performance evaluation and improvements, and application developments. We hope that readers will benefit from the insights of these papers and contribute to these rapidly growing areas. We also hope that this Special Issue will shed light on major developments in the area of machine learning and mathematical modeling for optimization problems and that it will attract the attention of the scientific community to pursue further investigations, leading to the rapid implementation of these techniques.



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