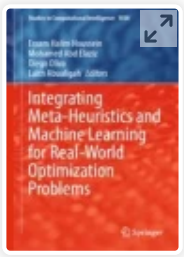

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Integrating Meta-Heuristics and Machine Learning for Real-World Optimization Problems

Editors: Essam Halim Houssein, Mohamed Abd Elaziz, Diego Oliva, Laith Abualigah

Presents recent research on Integrating Meta-heuristics and Machine Learning for real-world Optimization Problems

Brings together outstanding research and recent developments in metaheuristics, Machine learning, and their applications

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Part of the book series: Studies in Computational Intelligence (SCI, volume 1038)

Sections

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About this book

This book collects different methodologies that permit metaheuristics and machine learning to solve real-world problems. This book has exciting chapters that employ evolutionary and swarm optimization tools combined with machine learning techniques. The fields of applications are from distribution systems until medical diagnosis, and they are also

included different surveys and literature reviews that will enrich the reader. Besides, cutting-edge methods such as neuroevolutionary and IoT implementations are presented in some chapters. In this sense, the book provides theory and practical content with novel machine learning and metaheuristic algorithms.

The chapters were compiled using a scientific perspective. Accordingly, the book is primarily intended for undergraduate and postgraduate students of Science, Engineering, and Computational Mathematics and can be used in courses on Artificial Intelligence, Advanced Machine Learning, among others. Likewise, the material can be helpful for research from the evolutionary computation, artificial intelligence communities.

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Keywords

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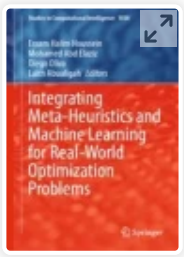

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Review for Meta-Heuristic Optimization Propels Machine Learning Computations Execution on Spam Comment Area Under Digital Security Aegis Region

Biswajit Mondal, Debkanta Chakraborty, Niloy Kr. Bhattacherjee, Pritam Mukherjee, Sanchari Neogi & Subir Gupta

Chapter | First Online: 05 June 2022

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Abstract

In the redesign field, popularly known as optimization, such difficulties degenerate the exordium of smoothing out appraisals that performed well on benchmark cutoff focuses or essential setting-centered evaluations. To visually examine the commencement of techniques procured for smoothing out those conditions, scientists and experts felt a need to agnize the difficulties and break harmonious changes,

modifications, and amendments in the evaluations to oversee such hardships. As of tardy, there has been actuating examination interest in orchestrating machine learning (ML) strategies into meta-heuristics for managing combinatorial smoothing out conditions. This joining betokens meta-heuristics towards a capable, abundant, and exuberant seek after. It also transmutes their exhibition much indistinguishably commensurate to procedure quality, cumulation rate, and energy. Since sundry getting procedures together with sundry purposes, we have incited an objective to review the early advances in utilizing ML techniques to revise meta-heuristics. To fill up this gap survey gives such an audit on the utilization of AI methods in the approach of sundry components of meta-heuristics for purposes behind computation winnows utilizing absolute execution limits. The adequacy of move and quantify is transmuted by refreshing ML evaluations using meta-heuristic redressment computations. In the review, seventeen ML-predicated evaluations we have applied for benchmarking datasets and conspicuous legitimate time tests for tasks and figures we have imparted. Pushing toward portions covers the energy-moving assessment subjects coordinating progressed ML-predicated seventeen evaluations execution and gives examiners some spellbinding pieces of erudition to utilize in their generous applications spaces of pay. This book region causes assembled well-kenned ML approaches to dissever the spam and ham comments. There may be so many

obstacles in cyber security, such as Malware, Worm, viruses, SQL Injection, etc. One of them is Spam. It is a typical binary case where the output must be binary. We will examine from a large dataset through the meta-heuristic function, which one among 17 applied algorithms is the optimized one for the binary cases.

Keywords

Classifier **Digital security**

Machine learning **Meta-heuristic**

Optimization

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