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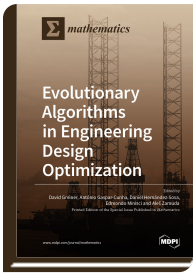
Special Issue Reprint

Evolutionary Algorithms in Engineering Design Optimization



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Evolutionary algorithms (EAs) are population-based global optimizers, which, due to their characteristics, have allowed us to solve, in a straightforward way, many real world optimization problems in the last three decades, particularly in engineering fields. Their main advantages are the following: they do not require any requisite to the objective/fitness evaluation function (continuity, derivability, convexity, etc.); they are not limited by the appearance of discrete and/or mixed variables or by the requirement of uncertainty quantification in the search. Moreover, they can deal with more than one objective function simultaneously through the use of evolutionary multi-objective optimization algorithms. This set of advantages, and the continuously increased computing capability of modern computers, has enhanced their application in research and industry. From the application point of view, in this Special Issue, all engineering fields are welcomed, such as aerospace and aeronautical, biomedical, civil, chemical and materials science, electronic and telecommunications, energy and electrical, manufacturing, logistics and transportation, mechanical, naval architecture, reliability, robotics, structural, etc. Within the EA field, the integration of innovative and improvement aspects in the algorithms for solving real world engineering design problems, in the abovementioned application fields, are welcomed and such as the following: parallel EAs, surrogate modeling, hybridization with tion techniques, multi-objective and many-objective optimization, etc.

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