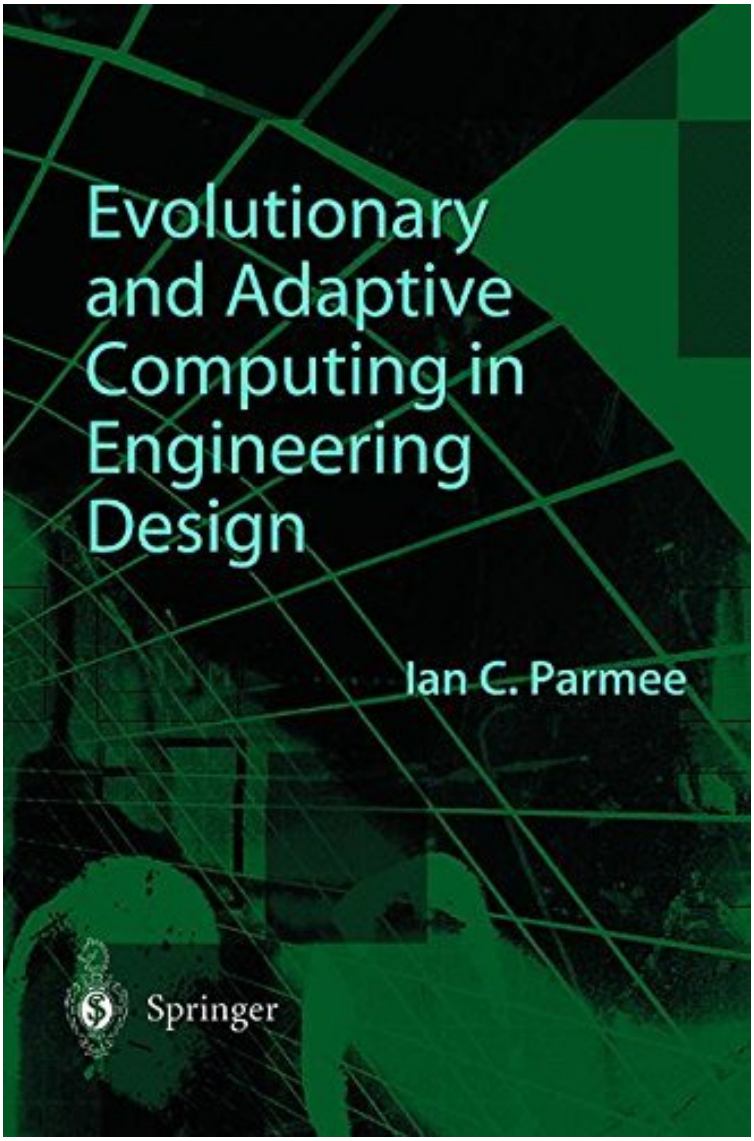
Evolutionary and Adaptive Computing in Engineering Design: The Integration of Adaptive Search Exploration and Optimization with Engineering Design Processes

Von Ian C. Parmee
*ePub | *DOC | audiobook | ebooks | Download PDF*



Produktinformation Verffentlicht am: 2012-12-06Erscheinungsdatum: 2012-12-06File Name: B001BUFUJO | File size: 74.Mb

Von Ian C. Parmee : Evolutionary and Adaptive Computing in Engineering Design: The Integration of Adaptive Search Exploration and Optimization with Engineering Design Processes before purchasing it in order to gage whether or not it would be worth my time, and all praised Evolutionary and Adaptive Computing in

Engineering Design: The Integration of Adaptive Search Exploration and Optimization with Engineering Design Processes:

KurzbeschreibungFollowing an introduction to the various techniques and examples of their routine application, this potential is explored through the introduction of various strategies that support searches across a far broader set of possible design solutions within time and budget constraints. Generic problem areas investigated include:- design decomposition;- whole-system design;- multi-objective and constraint satisfaction;- human-computer interaction;- computational expense.Appropriate strategies that help overcome problems often encountered when integrating computer-based techniques with complex, real-world design environments are described. A straightforward approach coupled with examples supports a rapid understanding of the manner in which such strategies can best be designed to handle the complexities of a particular problem.KurzbeschreibungFollowing an introduction to the various techniques and examples of their routine application, this potential is explored through the introduction of various strategies that support searches across a far broader set of possible design solutions within time and budget constraints. Generic problem areas investigated include:- design decomposition;- whole-system design;- multi-objective and constraint satisfaction;- human-computer interaction;- computational expense.Appropriate strategies that help overcome problems often encountered when integrating computer-based techniques with complex, real-world design environments are described. A straightforward approach coupled with examples supports a rapid understanding of the manner in which such strategies can best be designed to handle the complexities of a particular problem.Synopsis The overall purpose of the book is to raise designers' and researchers' awareness of the potential of evolutionary and adaptive computing within engineering design. Although there are many examples of the application of evolutionary and adaptive search algorithms to well-defined engineering design problems, examples exploring the generic utility of these techniques across the design process as a whole are less evident. Experience of the integration of the technology with conceptual, embodiment and detailed design processes indicates that, in addition to routine optimisation, the powerful search and exploration capabilities of the various techniques coupled with appropriate designer interaction can lead to the discovery of high-performance, innovative design alternatives. Following an introduction to the various techniques and examples of their routine application, this potential is explored through the introduction of various strategies that support searches across a far broader set of possible design solutions within time and budget constraints.Generic problem areas investigated include: design decomposition; whole-system design; multi-objective and constraint satisfaction; human-computer interaction; computational expense. These stem from across the mechanical, civil, electronic, aerospace and power system engineering sectors. Appropriate strategies that help overcome problems often encountered when integrating computer-based techniques with complex, real-world design environments are described. A straightforward approach coupled with examples supports a rapid understanding of the manner in which such strategies can best be designed to handle the complexities of a particular problem.