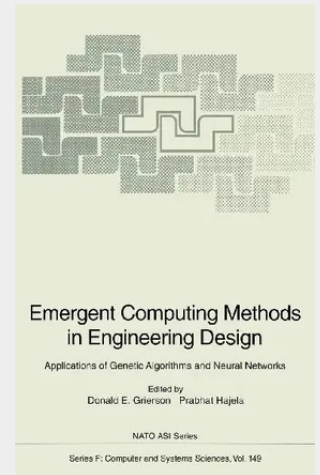


Emergent Computing Methods in Engineering Design

Applications of Genetic Algorithms and Neural Networks

This volume contains the text of papers presented at the NATO Advanced Research Workshop on Emergent Computing Methods in Engineering Design, held in Nafplio, Greece, August 25-27, 1994. The workshop convened together some thirty or so researchers from Canada, France, Germany, Greece, Israel, Taiwan, The Netherlands, United Kingdom and the United States of America, to address issues related to the application of such emergent computing methods as genetic algorithms, neural networks and simulated annealing in problems of engineering design. The volume is essentially organized into three parts, with each part having some theoretical papers and other papers of a more practical nature. The first part, which comprises the largest number of papers, deals with genetic algorithms and evolutionary computing and presents subject matter ranging from proposed improvements to the computing methodology to specific applications in engineering design. The second part deals with neural networks and considers such topics as their application as approximation tools in design, their adaptation in control system design and theoretical issues of interpretation. The third part of the volume presents a collection of papers that examine such diverse topics as the combined use of genetic algorithms and neural networks, the application of simulated annealing techniques, problem decomposition techniques and the computer recognition and interpretation of emerging objects in engineering design.

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