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Nota di contenuto	Preface -- Contributors -- Part 1: Theory of Modern Heuristic Optimization -- 1. Introduction to Evolutionary Computation (David B. Fogel) -- 2. Fundamentals of Genetic Algorithms (Alexandre P. Alves da Silva and Djalma M. Falcao) -- 3. Fundamentals of Evolution Strategies and Evolutionary Programming (Vladimiro Miranda) -- 4. Fundamentals of Particle Swarm Optimization Techniques (Yoshikazu Fukuyama) -- 5. Fundamentals of Ant Colony Search Algorithms (Yong-Hua Song, Haiyan Lu, Kwang Y. Lee, and I.K. Yu) -- 6. Fundamentals of Tabu Search (Alcir J. Monticelli, Ruben Romero, and Eduardo Nobuhiro Asada) -- 7. Fundamentals of Simulated Annealing (Alcir J. Monticelli, Ruben

Romero, and Eduardo Nobuhiro Asada) -- 8. Fuzzy Systems (Germano Lambert-Torres) -- 9. Differential Evolution, an Alternative Approach to Evolutionary Algorithm (Kit Po Wong and Zhao Yang Dong) -- 10. Pareto Multiobjective Optimization (Patrick N. Ngatchou, Anahita Zarei, Warren L. J. Fox, and Mohamed A. El-Sharkawi) -- 11. Trust-Tech Paradigm for Computing High-Quality Optimal Solutions: Method and Theory (Hsiao-Dong Chaing and Jaewook Lee) -- Part 2: Selected Applications of Modern Heuristic Optimization in Power Systems -- 12. Overview of Applications in Power Systems (Alexandre P. Alves da Silva, Djalma M. Falcao, and Kwang Y. Lee) -- 13. Application of Evolutionary Technique to Power System Vulnerability Assessment (Mingoo Kim, Mohamed A. el-Sharkawi, Robert J. Marks, and Ioannis N. Kassabalidis) -- 14. Applications to System Planning (Eduardo Nobuhiro Asada, Youngjae Jeon, Kwang Y. Lee, Vladimiro Miranda, Alcir J. Monticelli, Koichi Nara, Jong-Bae Park, Ruben Romero, and Yong-Hua Song) -- 15. Applications to Power System Scheduling (Koay Chin Aik, Loi Lei Lai, Kwang Y. Lee, Haiyan Lu, Jong-Bae Park, Young-Hua Song, Dipti Srinivasan, John G. Vlachogiannis, and I.K. Yu) -- 16. Power System Controls (Yoshikazu Fukuyama, Hamid Ghezelayagh, Kwang Y. Lee, Chen-Ching Liu, Yong-Hua Song, and Ying Xiao).
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Sommario/riassunto

This book explores how developing solutions with heuristic tools offers two major advantages: shortened development time and more robust systems. It begins with an overview of modern heuristic techniques and goes on to cover specific applications of heuristic approaches to power system problems, such as security assessment, optimal power flow, power system scheduling and operational planning, power generation expansion planning, reactive power planning, transmission and distribution planning, network reconfiguration, power system control, and hybrid systems of heuristic methods.