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Titolo	Differential evolution : fundamentals and applications in electrical engineering / / Anyong Qing
Pubbl/distr/stampa	Oxford, : Wiley-Blackwell, c2009
ISBN	9786612382116
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Descrizione fisica	1 online resource (462 p.)
Disciplina	621.301/5196
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Soggetti	Evolution equations
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Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	An introduction to optimization -- Fundamentals of differential evolution -- Advances in differential evolution -- Configuring a parametric study on differential evolution -- Benchmarking a single-objective optimization test bed for parametric study on differential evolution -- Differential evolution strategies -- Optimal intrinsic control parameters -- Non-intrinsic control parameters -- An introductory survey on differential evolution in electrical and electronic engineering -- Flexible QoS multicast routing in next-generation Internet -- Multisite mapping onto grid environments -- Synthesis of time-modulated antenna arrays -- Automated analog electronic circuits sizing -- Strategic bidding in a competitive electricity market -- 3D tracking of license plates in video sequences -- Color quantization.
Sommario/riassunto	Differential evolution is a very simple but very powerful stochastic

optimizer. Since its inception, it has proved very efficient and robust in function optimization and has been applied to solve problems in many scientific and engineering fields. In Differential Evolution, Dr. Qing begins with an overview of optimization, followed by a state-of-the-art review of differential evolution, including its fundamentals and up-to-date advances. He goes on to explore the relationship between differential evolution strategies, intrinsic control parameters, non-intrinsic control parameters, and problem features through a parametric study. Findings and recommendations on the selection of strategies and intrinsic control parameter values are presented. Lastly, after an introductory review of reported applications in electrical and electronic engineering fields, different research groups demonstrate how the methods can be applied to such areas as: multicast routing, multisite mapping in grid environments, antenna arrays, analog electric circuit sizing, electricity markets, stochastic tracking in video sequences, and color quantization. . Contains a systematic and comprehensive overview of differential evolution. Reviews the latest differential evolution research. Describes a comprehensive parametric study conducted over a large test bed . Shows how methods can be practically applied to . mobile communications. grid computing. circuits. image processing. power engineering . Sample applications demonstrated by research groups in the United Kingdom, Australia, Italy, Turkey, China, and Eastern Europe. Provides access to companion website with code examples for download Differential Evolution is ideal for application engineers, who can use the methods described to solve specific engineering problems. It is also a valuable reference for post-graduates and researchers working in evolutionary computation, design optimization and artificial intelligence. Researchers in the optimization field or engineers and managers involved in operations research will also find the book a helpful introduction to the topic.