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Altri autori (Persone)	KozielSlawomir LeifssonLeifur
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Nota di contenuto	Space Mapping for Electromagnetic-Simulation-Driven Design Optimization, Slawomir Koziel, Leifur Leifsson, and Stanislav Ogurtsov -- Surrogate-Based Circuit Design Centering, Abdel-Karim S.O. Hassan and Ahmed S.A. Mohamed -- Simulation-Driven Antenna Design Using Surrogate-Based Optimization, Slawomir Koziel, Stanislav Ogurtsov,

and Leifur Leifsson -- Practical Application of Space Mapping Techniques to the Synthesis of CSRR-based Artificial Transmission Lines, Ana Rodríguez, Jordi Selga, Ferran Martín and Vicente E. Boria -- The Efficiency of Difference Mapping on Space Mapping Based Optimization, Murat Simsek, Neslihan Serap Sengor -- Bayesian Support Vector Regression Modeling of Microwave Structures for Design Applications, J. Pieter Jacobs, Slawomir Koziel, Leifur Leifsson -- Artificial Neural Networks and Space Mapping For EM-Based Modelling and Design of Microwave Circuits, José Ernesto Rayas-Sánchez -- Model-Based Variation-Aware Integrated Circuit Design, Ting Zhu, Mustafa Berke Yelten, Michael B. Steer, and Paul D. Franzon -- Computing Surrogates for Gas Network Simulation using Model Order Reduction, Sara Grundel, Nils Hornung, Bernhard Klaassen, Peter Benner, and Tanja Clees -- Aerodynamic Shape Optimization by Space Mapping, Leifur Leifsson, Slawomir Koziel, Eirikur Jonsson, Stanislav Ogurtsov -- Efficient Robust Design with Stochastic Expansions, Yi Zhang, and Serhat Hosder -- Surrogate Models for Aerodynamic Shape Optimisation, Selvakumar Ulaganathan, and Nikolaos Asproulis -- Knowledge-Based Surrogate Modeling in Engineering Design Optimization, Qian Xu, Erich Wehrle, Horst Baier -- Switching Response Surface Models for Structural Health Monitoring of Bridges, Keith Worden, Elizabeth J. Cross, and James M.W. Brownjohn -- Surrogate Modeling of Stability Constraints for Optimization of Composite Structures -- S. Grihon, E. Burnaev, M. Belyaev, P. Prikhodko -- Engineering Optimization and Industrial Applications, Xin-She Yang.

Sommario/riassunto

Contemporary engineering design is heavily based on computer simulations. Accurate, high-fidelity simulations are used not only for design verification but, even more importantly, to adjust parameters of the system to have it meet given performance requirements. Unfortunately, accurate simulations are often computationally very expensive with evaluation times as long as hours or even days per design, making design automation using conventional methods impractical. These and other problems can be alleviated by the development and employment of so-called surrogates that reliably represent the expensive, simulation-based model of the system or device of interest but they are much more reasonable and analytically tractable. This book is about surrogate-based modeling and optimization techniques, and their applications for solving difficult and computationally expensive engineering design problems. It begins by presenting the basic concepts and formulations of the surrogate-based modeling and optimization paradigm and then discusses relevant modeling techniques, optimization algorithms and design procedures, as well as state-of-the-art developments. The chapters are self-contained with basic concepts and formulations along with applications and examples. The book will be useful to researchers in engineering and mathematics, in particular those who employ computationally heavy simulations in their design work.