

1. Record Nr.	UNINA9910557148403321
Autore	Kavzoglu Taskin
Titolo	Artificial Neural Networks and Evolutionary Computation in Remote Sensing
Pubbl/distr/stampa	Basel, Switzerland, : MDPI - Multidisciplinary Digital Publishing Institute, 2021
Descrizione fisica	1 online resource (256 p.)
Soggetti	Research and information: general
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Sommario/riassunto	<p>Artificial neural networks (ANNs) and evolutionary computation methods have been successfully applied in remote sensing applications since they offer unique advantages for the analysis of remotely-sensed images. ANNs are effective in finding underlying relationships and structures within multidimensional datasets. Thanks to new sensors, we have images with more spectral bands at higher spatial resolutions, which clearly recall big data problems. For this purpose, evolutionary algorithms become the best solution for analysis. This book includes eleven high-quality papers, selected after a careful reviewing process, addressing current remote sensing problems. In the chapters of the book, superstructural optimization was suggested for the optimal design of feedforward neural networks, CNN networks were deployed for a nanosatellite payload to select images eligible for transmission to ground, a new weight feature value convolutional neural network (WFCNN) was applied for fine remote sensing image segmentation and extracting improved land-use information, mask regional-convolutional neural networks (Mask R-CNN) was employed for extracting valley fill faces, state-of-the-art convolutional neural network (CNN)-based object detection models were applied to automatically detect airplanes and ships in VHR satellite images, a coarse-to-fine detection strategy was employed to detect ships at different sizes, and a deep quadruplet network (DQN) was proposed for</p>

hyperspectral image classification.

2. Record Nr.	UNINA9910254076703321
Autore	Koziel Slawomir
Titolo	Simulation-driven design by knowledge-based response correction techniques // by Slawomir Koziel, Leifur Leifsson
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2016
ISBN	3-319-30115-2
Edizione	[1st ed. 2016.]
Descrizione fisica	1 online resource (266 p.)
Disciplina	510
Soggetti	Mathematical optimization Mathematical models Computer science - Mathematics Discrete Optimization Continuous Optimization Mathematical Modeling and Industrial Mathematics Computational Science and Engineering
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.
Nota di contenuto	Introduction -- Simulation-Driven Design -- Fundamentals of Numerical Optimization -- Introduction to Surrogate-Based Modeling and Surrogate-Based Optimization -- Design Optimization Using Response Correction Techniques -- Surrogate-Based Optimization Using Parametric Response Correction -- Non-Parametric Response Correction Techniques -- Expedited Simulation-Driven Optimization Using Adaptively Adjusted Design Specification -- Surrogate-Assisted Design Optimization Using Response Features -- Enhancing Response Correction Techniques by Adjoint Sensitivity -- Multi-Objective Optimization Using Variable-Fidelity Models and Response Correction -- Physics-Base Surrogate Models Using Response Correction -- Summary and Discussion -- References. .
Sommario/riassunto	Focused on efficient simulation-driven multi-fidelity optimization

techniques, this monograph on simulation-driven optimization covers simulations utilizing physics-based low-fidelity models, often based on coarse-discretization simulations or other types of simplified physics representations, such as analytical models. The methods presented in the book exploit as much as possible any knowledge about the system or device of interest embedded in the low-fidelity model with the purpose of reducing the computational overhead of the design process. Most of the techniques described in the book are of response correction type and can be split into parametric (usually based on analytical formulas) and non-parametric, i.e., not based on analytical formulas. The latter, while more complex in implementation, tend to be more efficient. The book presents a general formulation of response correction techniques as well as a number of specific methods, including those based on correcting the low-fidelity model response (output space mapping, manifold mapping, adaptive response correction and shape-preserving response prediction), as well as on suitable modification of design specifications. Detailed formulations, application examples and the discussion of advantages and disadvantages of these techniques are also included. The book demonstrates the use of the discussed techniques for solving real-world engineering design problems, including applications in microwave engineering, antenna design, and aero/hydrodynamics.
