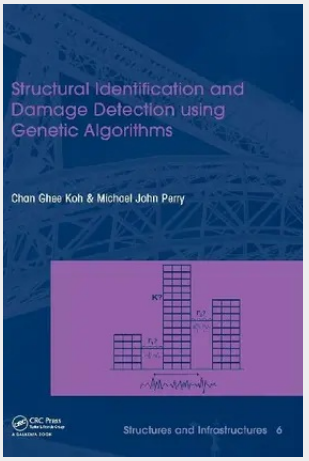
Koh / Perry

Structural Identification and Damage Detection using Genetic Algorithms

Structures and Infrastructures Book Series, Vol. 6



Rapid advances in computational methods and computer capabilities have led to a new generation of structural identification strategies. Robust and efficient methods have successfully been developed on the basis of genetic algorithms (GA). This volume presents the development of a novel GA-based identification strategy that contains several advantageous features compared to previous methods. Focusing on structural identification problems with limited and noise contaminated measurements; it provides insight into the effects of various identification parameters on the identification accuracy for systems with known mass. It then proposes a generalization for systems with unknown mass, stiffness and damping properties. The GA identification strategy is subsequently extended for structural damage detection. The findings of the output-only strategy and substructural identification represent a great leap forward from the practical point of view. This book is intended for researchers, engineers and graduate students in structural and mechanical engineering, particularly for those interested in model calibration, parameter estimation and damage detection of structural and mechanical systems using the state-of-the-art GA methodology.

A comprehensive review of robust methods based on genetic algorithms (GA), this book presents readers with the background and recent developments required to conduct research and apply GA-based methods for parameter identification, model updating, and damage detection of structural dynamic systems. It demonstrates a novel strategy that focuses on structural identification problems with limited and noise-contaminated measurements. This book also presents parameter estimation of non-linear structural systems to illustrate the power and versatility of the GA-based identification strategy.

255,50 €
255,50 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780415461023
Medium: Buch
ISBN: 978-0-415-46102-3
Verlag: CRC Press
Erscheinungstermin: 07.12.2009
Sprache(n): Englisch
Auflage: 1. Auflage 2009
Serie: Structures and Infrastructures
Produktform: Gebunden
Gewicht: 416 g
Seiten: 164
Format (B x H): 175 x 250 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)