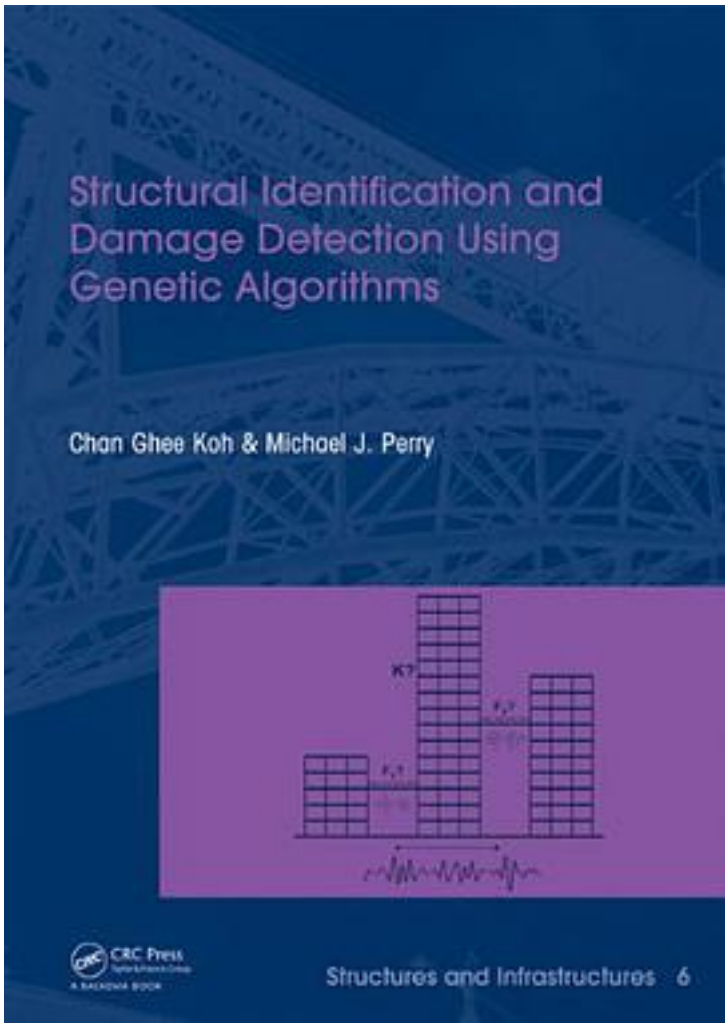
Structural Identification and Damage Detection using Genetic Algorithms



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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 insights 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.

作者介绍:

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