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4.3 Boundary Element Fracture Mechanics4.4 Predictive Modeling of Crack Propagation; 4.5 Numerical Results; 4.6 Conclusions; Acknowledgments; References; 5 On Friction Induced Nonideal Vibrations: A Source of Fatigue; 5.1 Preliminary Remarks; 5.2 Nonlinear Dynamics of Ideal and Nonideal Stick-Slip Vibrations; 5.3 Switching Control for Ideal and Nonideal Stick-Slip Vibrations; 5.4 Some Concluding Remarks; Acknowledgments; References; 6 Incorporating and Updating of Damping in Finite Element Modeling; 6.1 Introduction; 6.2 Theoretical Fundamentals; 6.3 Application; 6.4 Conclusion; References
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8.2 Optimal Placement of Sensors and Actuators for Smart Structures8.3 Proposed Methodology; 8.4 Artificial Neural Network as a SHM Algorithm; 8.5 Genetic Algorithms as a SHM Algorithm; 8.6 Conclusion; References; 9 Uncertainty Quantification and the Verification and Validation of Computational Models; 9.1 Introduction; 9.2 Verification Activities; 9.3 Validation Activities; 9.4 Uncertainty Quantification; 9.5 Assessment of Prediction Accuracy; 9.6 Conclusion; References; 10 Reliability Methods; 10.1 Introduction; 10.2 Reliability Assessment; 10.3 Approximation of the Probability of Failure
10.4 Decision Making

Sommario/riassunto

Damage prognosis is a natural extension of damage detection and structural health monitoring and is forming a growing part of many businesses. This comprehensive volume presents a series of fundamental topics that define the new area of damage prognosis. Bringing together essential information in each of the basic technologies necessary to perform damage prognosis, it also reflects the highly interdisciplinary nature of the industry through the extensive referencing of each of the component disciplines. Taken from lectures given at the Pan American Advanced Studies Institute in Damage Pro