
Preface

Finite-element-model Updating Using Computational Intelligence Techniques introduces the concepts of computational intelligence for finite-element-model updating. Finite-element modeling is a subject that has received acceptance and has applications in various disciplines of engineering including aerospace, civil, mechanical and electrical engineering. These finite-element models, however, do not necessarily predict the measured data sufficiently accurately. Because of this, there is a need for these models to be updated to better reflect the measured data.

This book introduces computational intelligence techniques to update finite-element models. The computational intelligence methods used for finite-element-model updating include neural networks, genetic algorithms, particle-swarm optimization, simulated annealing, response-surface methods, hybrid methods and Bayesian methods. Applications to engineering problems are considered especially for updating of finite-element models and its application to damage detection.

This book makes an interesting read and it will open up new avenues in the use of computational intelligence techniques to the problem of finite-element-model updating.

May 2010
University of Johannesburg, Johannesburg

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Finite Element Model Updating Using Computational
Intelligence Techniques

Applications to Structural Dynamics

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2010, XV, 250 p., Hardcover

ISBN: 978-1-84996-322-0