

# Nonlinear Optimization of Vehicle Safety Structures: Modeling of Structures Subjected to Large Deformations

Jesper Christensen, Christophe Bastien

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Nonlinear Optimization of Vehicle Safety Structures: Modeling of Structures Subjected to Large Deformations provides a cutting-edge overview of the latest optimization methods for vehicle structural design. The book focuses on large deformation structural optimization algorithms and applications, covering the basic principles of modern day topology optimization and comparing the benefits and flaws of different algorithms in use.

The complications of non-linear optimization are highlighted, along with the shortcomings of recently proposed algorithms. Using industry relevant case studies, users will how optimization software can be used to address challenging vehicle safety structure problems and how to explore the limitations of the approaches given. The authors draw on research work with the likes of MIRA, Jaguar Land Rover and Tata Motors European Technology Centre as part of multi-million pound European funded research projects, emphasizing the industry applications of recent advances.

The book is intended for crash engineers, restraints system engineers and vehicle dynamics engineers, as well as other mechanical, automotive and aerospace engineers, researchers and students with a structural focus.

- Focuses on non-linear, large deformation structural optimization problems relating to vehicle safety
- Discusses the limitations of different algorithms in use and offers guidance on best practice approaches through the use of relevant case studies
- Author's present research from the cutting-edge of the industry, including research from leading European automotive companies and organizations
- Uses industry relevant case studies, allowing users to understand how optimization software can be used to
  address challenging vehicle safety structure problems and how to explore the limitations of the approaches
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