

Modeling and Optimization in Space Engineering

State of the Art and New Challenges

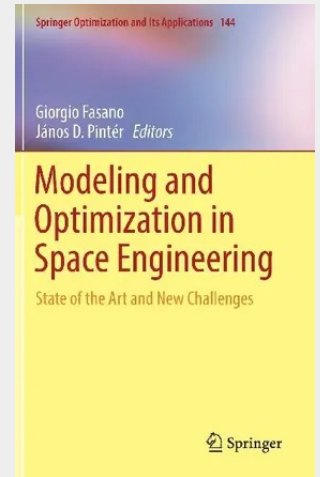
This book presents advanced case studies that address a range of important issues arising in space engineering. An overview of challenging operational scenarios is presented, with an in-depth exposition of related mathematical modeling, algorithmic and numerical solution aspects. The model development and optimization approaches discussed in the book can be extended also towards other application areas.

The topics discussed illustrate current research trends and challenges in space engineering as summarized by the following list:

- Next Generation Gravity Missions
- Continuous-Thrust Trajectories by Evolutionary Neurocontrol
- Nonparametric Importance Sampling for Launcher Stage Fallout
- Dynamic System Control Dispatch
- Optimal Launch Date of Interplanetary Missions
- Optimal Topological Design
- Evidence-Based Robust Optimization
- Interplanetary Trajectory Design by Machine Learning
- Real-Time Optimal Control
- Optimal Finite Thrust Orbital Transfers
- Planning and Scheduling of Multiple Satellite Missions
- Trajectory Performance Analysis
- Ascent Trajectory and Guidance Optimization
- Small Satellite Attitude Determination and Control
- Optimized Packings in Space Engineering
- Time-Optimal Transfers of All-Electric GEO Satellites

Researchers working on space engineering applications will find this work a valuable, practical source of information. Academics, graduate and post-graduate students working in aerospace, engineering, applied mathematics, operations research, and optimal control will find useful information regarding model development and solution techniques, in conjunction with real-world applications.

This book presents advanced case studies that address a range of important issues arising in space engineering. An overview of challenging operational scenarios is presented, with an in-depth exposition of related mathematical modeling, algorithmic and numerical solution aspects. The model development and optimization approaches discussed in the book can be extended also towards other application areas. The topics discussed illustrate current research trends and challenges in space engineering as summarized by the following list: • Next Generation Gravity Missions • Continuous-Thrust Trajectories by Evolutionary Neurocontrol • Nonparametric Importance Sampling for Launcher Stage Fallout • Dynamic System Control Dispatch • Optimal Launch Date of



128,39 €

119,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030105006

Medium: Buch

ISBN: 978-3-030-10500-6

Verlag: Springer

Erscheinungstermin: 22.05.2019

Sprache(n): Englisch

Auflage: 1. Auflage 2019

Serie: Springer Optimization and Its Applications

Produktform: Gebunden

Gewicht: 898 g

Seiten: 478

Format (B x H): 160 x 241 mm

