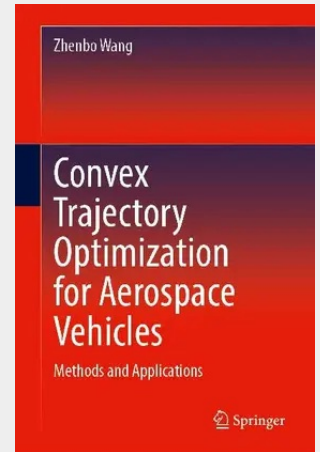


Convex Trajectory Optimization for Aerospace Vehicles

Methods and Applications

Convex Trajectory Optimization for Aerospace Vehicles: Methods and Applications is a comprehensive guide to leveraging convex optimization for solving complex trajectory design problems in aerospace engineering. This book provides a unified treatment of theory, algorithms, and practical applications, showing how convexification and sequential convex programming (SCP) can transform traditionally challenging, nonconvex aerospace trajectory optimization problems into tractable formulations that deliver strong performance. Readers will discover how these methods enable efficient, reliable, and scalable solutions for missions ranging from lunar landings and orbit transfers to atmospheric entry and advanced air mobility operations. Unlike conventional approaches that struggle with computational complexity and sensitivity to initial guesses, convex optimization offers robustness and real-time implementability, which are critical for modern autonomous aerospace systems. Packed with detailed case studies and implementation strategies, this book bridges cutting-edge research and practical engineering needs. It is an indispensable resource for aerospace engineers, researchers, and graduate students seeking to design next-generation aerospace vehicles that achieve optimal performance under stringent operational constraints.

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