

Time-Synchronized Control and Applications for Autonomous Systems

Time-Synchronized Control and Applications for Autonomous Systems introduces a control problem with unique finite/fixed/predefined-time stability considerations, namely time-synchronized stability where all system state elements converge to the origin. Sections delve into the wide-ranging applications of time-synchronized control in various practical control systems, including, but not limited to, spacecraft attitude control/tracking, satellite orbit control, dynamic positioning of vessels, cooperative control of autonomous vehicles, etc. In addition, a diverse array of control system models are considered, encompassing disturbed systems, chaotic systems, multi-input multi-output (MIMO) systems, nonlinear systems, and Euler-Lagrange systems. Through an in-depth exploration of these specific cases, the book showcases the versatility and effectiveness of time-synchronized control methods across different domains, providing readers with a comprehensive perspective on their practical utility.

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224,50 €

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vorbestellbar, Erscheinungstermin ca. November 2026

Artikelnummer: 9780443337185

Medium: Buch

ISBN: 978-0-443-33718-5

Verlag: Elsevier Science

Erscheinungstermin: 01.11.2026

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2026

Produktform: Kartoniert

Gewicht: 450 g

Seiten: 450

Format (B x H): 152 x 229 mm

