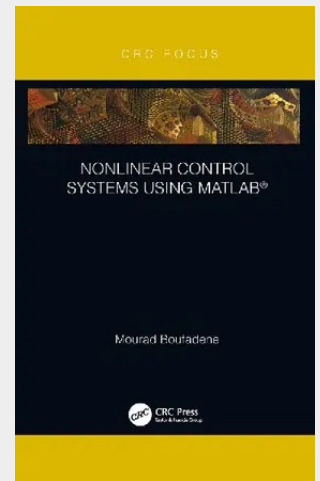


Nonlinear Control Systems using MATLAB®

The development of computer software for nonlinear control systems has provided many benefits for teaching, research, and the development of control systems design. MATLAB is considered the dominant software platforms for linear and nonlinear control systems analysis. This book provides an easy way to learn nonlinear control systems such as feedback linearization technique and Sliding mode control (Structure variable control) which are one of the most used techniques in nonlinear control dynamical systems; therefore teachers-students and researchers are all in need to handle such techniques; and since they are too difficult for them to handle such nonlinear controllers especially for a more complicated systems such as induction motor, satellite, and vehicles dynamical models. Thus, this document it is an excellent resource for learning the principle of feedback linearization and sliding mode techniques in an easy and simple way: - Provides a briefs description of the feedback linearization and sliding mode control strategies - Includes a simple method on how to determine the right and appropriate controller (P-PI-PID) for feedback linearization control strategy. - A Symbolic MATLAB Based function for finding the feedback linearization and sliding mode controllers are developed and tested using several examples. - A simple method for finding the approximate sliding mode controller parameters is introduced Where the program used to construct the nonlinear controller uses symbolic computations; such that the user should provide the program with the necessary functions $f(x)$, $g(x)$ and $h(x)$ using the symbolic library.

The development of computer software for nonlinear control systems has provided many benefits for teaching, research, and the development of control systems design. MATLAB is considered the dominant software platforms for linear and nonlinear control systems analysis. This book provides an easy way to learn nonlinear control systems such as feedback linearization technique and Sliding mode control (Structure variable control) which are one of the most used techniques in nonlinear control dynamical systems; therefore teachers-students and researchers are all in need to handle such techniques; and since they are too difficult for them to handle such nonlinear controllers especially for a more complicated systems such as induction motor, satellite, and vehicles dynamical models. Thus, this document it is an excellent resource for learning the principle of feedback linearization and sliding mode techniques in an easy and simple way: Provides a briefs description of the feedback linearization and slidingmode control strategies Includes a simple method on how to determine the right and appropriate controller (P-PI-PID) for feedback linearization control strategy. A Symbolic MATLAB Based function for finding the feedback linearization and sliding mode controllers are developed and tested using several examples. A simple method for finding the approximate sliding mode controller parameters is introduced Where the program used to construct the nonlinear controller uses symbolic computations; such that the user should provide the program with the necessary functions $f(x)$, $g(x)$ and $h(x)$ using the symbolic library.



30,60 €

30,60 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781032094731
Medium: Buch
ISBN: 978-1-032-09473-1
Verlag: CRC Press
Erscheinungstermin: 30.06.2021
Sprache(n): Englisch
Auflage: 1. Auflage 2021
Produktform: Kartoniert
Gewicht: 109 g
Seiten: 76
Format (B x H): 140 x 216 mm

