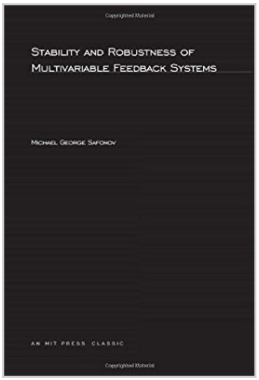

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control)

By Michael George Safonov

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov

This book on stability theory and robustness will interest researchers and advanced graduate students in the area of feedback control engineering, circuits, and systems. It will also appeal to mathematicians who are involved in applications of functional analysis to engineering problems.

The book provides a methodology for the rigorous treatment of such inherently feedback aspects of dynamical system design as robustness and sensitivity, just as many researchers are beginning to realize that this type of methodology is mandatory if modern systems theory is to be used to design complicated multivariable and large-scale systems. The main objective of the book is to provide a clear mathematical formulation of the issues that arise in designing feedback systems that are robust against the destabilizing effects of unknown-but-bounded uncertainty in component dynamics. It is the first study to identify formal methods for the quantitative analysis of multiloop feedback system robustness.

The view that is presents of nonlinear, multiloop feedback system stability theory is unique, lucid, and conceptually appealing. Lyapunov and input-output stability theories are unified in a new and simple geometrical perspective based on the topological separation of spaces. This perspective greatly facilitates visualization of the underlying conceptual issues in stability and robustness theory and serves to motivate specific results concerning the robustness of feedback systems.

Potentially, this methodology may be applied to nonlinear feedback design, validation of modeling approximations, hierarchical control system design, and stability margin analysis for multiloop feedback systems.

This book is the third publication in The MIT Press Series in Signal Processing, Optimization, and Control, edited by Alan S. Willsky.

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control)

By Michael George Safonov

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov

This book on stability theory and robustness will interest researchers and advanced graduate students in the area of feedback control engineering, circuits, and systems. It will also appeal to mathematicians who are involved in applications of functional analysis to engineering problems.

The book provides a methodology for the rigorous treatment of such inherently feedback aspects of dynamical system design as robustness and sensitivity, just as many researchers are beginning to realize that this type of methodology is mandatory if modern systems theory is to be used to design complicated multivariable and large-scale systems. The main objective of the book is to provide a clear mathematical formulation of the issues that arise in designing feedback systems that are robust against the destabilizing effects of unknown-but-bounded uncertainty in component dynamics. It is the first study to identify formal methods for the quantitative analysis of multiloop feedback system robustness.

The view that is presents of nonlinear, multiloop feedback system stability theory is unique, lucid, and conceptually appealing. Lyapunov and input-output stability theories are unified in a new and simple geometrical perspective based on the topological separation of spaces. This perspective greatly facilitates visualization of the underlying conceptual issues in stability and robustness theory and serves to motivate specific results concerning the robustness of feedback systems.

Potentially, this methodology may be applied to nonlinear feedback design, validation of modeling approximations, hierarchical control system design, and stability margin analysis for multiloop feedback systems.

This book is the third publication in The MIT Press Series in Signal Processing, Optimization, and Control, edited by Alan S. Willsky.

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov Bibliography

- Sales Rank: #5680186 in Books
- Brand: Brand: MIT Press
- Published on: 1980-06-19
- Ingredients: Example Ingredients
- Original language: English
- Number of items: 1
- Dimensions: 9.06" h x .98" w x 5.91" l,
- Binding: Hardcover
- 171 pages

Editorial Review

Users Review

From reader reviews:

Jill Spann:

With other case, little persons like to read book Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control). You can choose the best book if you appreciate reading a book. So long as we know about how is important the book Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control). You can add know-how and of course you can around the world with a book. Absolutely right, mainly because from book you can learn everything! From your country until foreign or abroad you will end up known. About simple point until wonderful thing it is possible to know that. In this era, you can open a book or maybe searching by internet device. It is called e-book. You should use it when you feel weary to go to the library. Let's study.

Agatha Roughton:

Hey guys, do you wishes to finds a new book you just read? May be the book with the title Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) suitable to you? Often the book was written by famous writer in this era. The particular book untitled Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control)is the one of several books this everyone read now. This book was inspired many men and women in the world. When you read this publication you will enter the new shape that you ever know previous to. The author explained their thought in the simple way, consequently all of people can easily to understand the core of this reserve. This book will give you a lot of information about this world now. So you can see the represented of the world in this particular book.

Matthew Russell:

Playing with family in a park, coming to see the sea world or hanging out with good friends is thing that usually you have done when you have spare time, in that case why you don't try factor that really opposite from that. Just one activity that make you not feeling tired but still relaxing, trilling like on roller coaster you have been ride on and with addition info. Even you love Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control), you can enjoy both. It is good combination right, you still wish to miss it? What kind of hangout type is it? Oh occur its mind hangout men. What? Still don't obtain it, oh come on its identified as reading friends.

Patrice Lach:

This Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) is great e-book for you because the content which can be full of information for you who have always deal with world and get to make decision every minute. That book reveal it facts accurately using great plan word or we can claim no rambling sentences inside it. So if you are read the idea hurriedly you can have whole details in it. Doesn't mean it only provides straight forward sentences but hard core information with lovely delivering sentences. Having Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) in your hand like obtaining the world in your arm, info in it is not ridiculous one. We can say that no reserve that offer you world within ten or fifteen tiny right but this e-book already do that. So , this is certainly good reading book. Hi Mr. and Mrs. active do you still doubt which?

Read Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov for online ebook

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov books to read online.

Online Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov ebook PDF download

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov Doc

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov Mobipocket

Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov EPub

FPV7H2QDISR: Stability and Robustness of Multivariable Feedback Systems (Signal Processing, Optimization, and Control) By Michael George Safonov