Communications and Control Engineering



Xing-Gang Yan Sarah K. Spurgeon Christopher Edwards

Variable Structure Control of Complex Systems

Analysis and Design



Xing-Gang Yan and

Uariable Structure Control of Complex Systems: Analysis and Design (Communications and Control Engineering)



This book systematizes recent research focus on variable-structure control. In the core of the reserve, the authors lay out an approach, suitable for a large class of systems, that deals with system uncertainties with nonlinear bounds. The text starts with an introduction to the fundamental ideas of variable-framework control pertinent with their application in complicated nonlinear systems. It is self-contained, presenting required mathematical preliminaries so that the theoretical developments can be very easily understood by a wide readership. Its treatment of complicated systems where limited measurement details is available makes the results developed easy to implement. Different case-study applications are referred to, from aerospace, through power systems to river pollution control with supporting simulations to assist the transition from mathematical theory to engineering practicalities. Variable-Framework Control of Complex Systems will become of curiosity to academic researchers studying control theory and its application in nonlinear, time-delayed an modular large-scale systems; It creates extensive usage of numerical and practical good examples to render its ideas more easily absorbed. The publication addresses systems with non-linearities, time delays and interconnections and considers issues such as stabilization, observer design, and fault recognition and isolation. the robustness of its approach will also be appealing to control engineers employed in sectors associate with aerospace, electric and mechanical engineering.



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