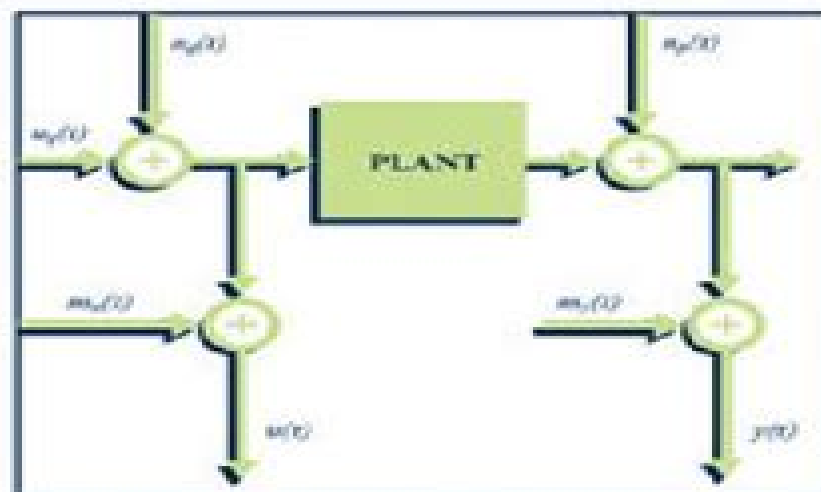


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System Identification Rik Pintelon, Johan Schoukens, 2004-03-22 Electrical Engineering System Identification A Frequency Domain Approach How does one model a linear dynamic system from noisy data This book presents a general approach to this problem with both practical examples and theoretical discussions that give the reader a sound understanding of the subject and of the pitfalls that might occur on the road from raw data to validated model The emphasis is on robust methods that can be used with a minimum of user interaction Readers in many fields of engineering will gain knowledge about Choice of experimental setup and experiment design Automatic characterization of disturbing noise Generation of a good plant model Detection qualification and quantification of nonlinear distortions Identification of continuous and discrete time models Improved model validation tools and from the theoretical side about System identification Interrelations between time and frequency domain approaches Stochastic properties of the estimators Stochastic analysis System Identification A Frequency Domain Approach is written for practicing engineers and scientists who do not want to delve into mathematical details of proofs Also it is written for researchers who wish to learn more about the theoretical aspects of the proofs Several of the introductory chapters are suitable for undergraduates Each chapter begins with an abstract and ends with exercises and examples are given throughout

System Identification (SYSID '03) Paul Van Den Hof, Bo Wahlberg, Siep Weiland, 2004-06-29 The scope of the symposium covers all major aspects of system identification experimental modelling signal processing and adaptive control ranging from theoretical methodological and scientific developments to a large variety of engineering application areas It is the intention of the

organizers to promote SYSID 2003 as a meeting place where scientists and engineers from several research communities can meet to discuss issues related to these areas Relevant topics for the symposium program include Identification of linear and multivariable systems identification of nonlinear systems including neural networks identification of hybrid and distributed systems Identification for control experimental modelling in process control vibration and modal analysis model validation monitoring and fault detection signal processing and communication parameter estimation and inverse modelling statistical analysis and uncertainty bounding adaptive control and data based controller tuning learning data mining and Bayesian approaches sequential Monte Carlo methods including particle filtering applications in process control systems motion control systems robotics aerospace systems bioengineering and medical systems physical measurement systems automotive systems econometrics transportation and communication systems Provides the latest research on System Identification Contains contributions written by experts in the field Part of the IFAC Proceedings Series which provides a comprehensive overview of the major topics in control engineering

Mastering System Identification in 100 Exercises Johan Schoukens, Rik Pintelon, Yves Rolain, 2012-04-02 This book enables readers to understand system identification and linear system modeling through 100 practical exercises without requiring complex theoretical knowledge The contents encompass state of the art system identification methods with both time and frequency domain system identification methods covered including the pros and cons of each Each chapter features MATLAB exercises discussions of the exercises accompanying MATLAB downloads and larger projects that serve as potential assignments in this learn by doing resource

Linear Parameter-Varying System Identification Paulo Lopes dos Santos, 2012 This review volume reports the state of the art in Linear Parameter Varying LPV system identification Written by world renowned researchers the book contains twelve chapters focusing on the most recent LPV identification methods for both discrete time and continuous time models using different approaches such as optimization methods for input output LPV models Identification set membership methods optimization methods and subspace methods for state space LPV models identification and orthonormal basis functions methods Since there is a strong connection between LPV systems hybrid switching systems and piecewise affine models identification of hybrid switching systems and piecewise affine systems will be considered as well

Bounding Approaches to System Identification M. Milanese, J. Norton, H. Piet-Lahanier, É. Walter, 2013-06-29 In response to the growing interest in bounding error approaches the editors of this volume offer the first collection of papers to describe advances in techniques and applications of bounding of the parameters or state variables of uncertain dynamical systems Contributors explore the application of the bounding approach as an alternative to the probabilistic analysis of such systems relating its importance to robust control system design

Nonlinear Approaches in Engineering Applications Liming Dai, Reza N. Jazar, 2011-12-21 Nonlinear Approaches in Engineering Applications focuses on nonlinear phenomena that are common in the engineering field The nonlinear approaches described in this book provide a sound theoretical base and practical tools to design and analyze

engineering systems with high efficiency and accuracy and with less energy and downtime Presented here are nonlinear approaches in areas such as dynamic systems optimal control and approaches in nonlinear dynamics and acoustics Coverage encompasses a wide range of applications and fields including mathematical modeling and nonlinear behavior as applied to microresonators nanotechnologies nonlinear behavior in soil erosion nonlinear population dynamics and optimization in reducing vibration and noise as well as vibration in triple walled carbon nanotubes The Shock and Vibration Digest,1990-07 Nonlinear Dynamics, Volume 2 Gaetan Kerschen,2014-03-28 This second volume of eight from the IMAC XXXII Conference brings together contributions to this important area of research and engineering The collection presents early findings and case studies on fundamental and applied aspects of Structural Dynamics including papers on Linear Systems Substructure Modelling Adaptive Structures Experimental Techniques Analytical Methods Damage Detection Damping of Materials Members Modal Parameter Identification Modal Testing Methods System Identification Active Control Modal Parameter Estimation Processing Modal Data

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