Modern Control Theory Text

Control Theory: Elements of modern control theory
Modern Control Systems
Modern Control Theory
Feedback Control Theory
Modern Control Systems Analysis and Design Using MATLAB and SIMULINK
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Modern Control: State-Space Analysis and Design Methods
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Linear Control Systems
Optimal Control and Estimation
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Modern Control System Theory and Application

KENYON GARDNER

Control Theory: Elements of modern control theory
Springer Science & Business Media
M->CREATED
Modern Control Systems Springer Science & Business Media
The definitive guide toadvanced control system design
Advanced Modern Control System Theory and Design offers the most comprehensive treatment of advanced control systems available today. Superbly organized and easy to use, this book is designed for an

advanced course and is a companion volume to the introductory text, Modern Control System Theory and Design, Second Edition (or any other introductory book on control systems). In addition, it can serve as an excellent text for practicing control system engineers who need to learn more advanced control systems techniques in order to perform their tasks. Advanced Modern Control Systems Theory and Design briefly reviews introductory control system analysis concepts and then presents the methods for designing linear control sys-tems using single-degree and two-degrees-of-freedom compensation techniques. The very important subjects of modern control system design using state-space, pole placement, Ackermann's formula, estimation, robust control, and H8 techniques are then presented. The following crucial subjects are then covered in the presentation: * Digital Control System Analysis and Design-extends the continuous concepts presented to discrete systems * Nonlinear Control System Design-extends the linear concepts presented tononlinear systems * Introduction to Optimal Control Theory and Its Applications-presents such key topics as dynamic programming and the maximum principle, as well as applications to the space attitude control problem and the lunar

soft-landing problem * Control System Design Examples: Complete Case Studies-presents the complete case studies of five control system design examples that illustrate practical design projects Other notable features of this volume are: * Free MATLAB software containing problem solutions which can be retrieved from the Mathworks, Inc. anonymous FTP server at ftp://ftp.mathworks.com/pub/books/advshinners * MATLAB programs and a tutorial on the use of MATLAB incorporated directly into the text * An extensive set of worked-out, illustrative solutions added in dedicated sections at the end of chapters * End-of-chapter problems-one-third with answers to facilitate self-study * A solutions manual containing solutions to the remaining two-thirds of the problems available from the Wiley editorial department.

Modern Control Theory
John Wiley & Sons
An updated and refined edition of the original presenting both continuous-time and discrete-time systems. Emphasizes the use of PCs to solve complex control system problems easily and efficiently. Provides a computer-aided learning environment with any commercially available CAD software. Features practical illustrations from various branches of engineering, numerous worked examples and

exercises.
Feedback Control Theory World Scientific Publishing Company Well-written, practice-oriented textbook, and compact textbook Presents the contemporary state of the art of control theory and its applications Introduces traditional problems that are useful in the automatic control of technical processes, plus presents current issues of control Explains methods can be easily applied for the determination of the decision algorithms in computer control and management systems
Modern Control Systems Analysis and Design Using MATLAB and SIMULINK Oxford University Press
This comprehensive treatment of the analysis and design of continuous-time control systems provides a "gradual" development of control theory and shows how to solve "all" computational problems with MATLAB. It avoids highly mathematical arguments, and features an abundance of examples and worked problems throughout the book. Chapter topics include the Laplace transform; mathematical modeling of mechanical systems, electrical systems, fluid systems, and thermal systems; transient and steady-state-response analyses, root-locus analysis and control systems design by the root-locus method; frequency-response analysis and control systems design by the

frequency-response; two-degrees-of-freedom control; state space analysis of control systems and design of control systems in state space. For control systems engineers.
Modern Control Theory
Cambridge University Press
Publisher's Note: Products purchased from Third Party sellers are not guaranteed by the publisher for quality, authenticity, or access to any online entitlements included with the product. Apply a state-space approach to modern control system analysis and design Written by an expert in the field, this concise textbook offers hands-on coverage of modern control system engineering. Modern Control: State-Space Analysis and Design Methods features start-to-finish design projects as well as online snippets of MATLAB code with simulations. The essential mathematics are presented along with fully worked-out examples in gradually increasing degrees of difficulty. Readers will receive “just-in-time” math background from a comprehensive appendix and get step-by-step descriptions of the latest analysis and design techniques. Coverage includes: • An introduction to control systems • State-space representations • Pole placement via state feedback • State estimators (observers) • Non-minimal canonical forms • Linearization • Lyapunov stability • Linear quadratic

regulators (LQR) • Symmetric root locus (SRL) • Kalman filter • Linear quadratic gaussian control (LQG)
Modern Control Engineering Wiley-Interscience
One of the key concerns in modern control theory is the design of steering strategies. The implementation of such strategies is done by a regulator. Presented here is a self-contained introduction to the mathematical background of this type of regulator design. The topics selected address the matter of greatest interest to the control community, at present, namely, when the design objective is the reduction of the influence of exogeneous disturbances upon the output of the system. In a first scenario the disturbance signal is regarded as a deterministic time series with known dynamics but unknown parameters. The design objective is then the asymptotic disturbance compensation. In a second scenario, no information about the disturbance signal is available apart from some bounds. Here, in an H-approach, control strategies are worked out which will prove efficient for all such disturbances. The intention of this book is to present ideas and methods on such a level that the beginning graduate student will be able to follow current research. New results are included, especially for nonlinear control

systems, and as a service to the reader, an extensive appendix presents topics from linear algebra, invariant manifolds and calculus of variations, information which is hardly to be found in standard textbooks. Contents: Introduction • The problem of output regulation • Introduction • Problem statement • Output regulation via full information • Output regulation via full error feedback • A particular case • Well-posedness and robustness • The construction of a robust regulator • Disturbance attenuation via H-methods • Introduction • Problem statement • A characterization of the L2-gain of a linear system • Disturbance attenuation via full information • Disturbance attenuation via measured feedback • Full information regulators • Problem statement • Time-dependent control strategies • Examples • Time-independent control strategies • The local case • Nonlinear observers • Problem statement • Time-dependent observers • Error feedback regulators • Examples • Nonlinear H-techniques • Introduction • Construction of the saddle-point • The local scenario • Disturbance attenuation via linearization • Matrix equations • Linear matrix equations • Algebraic Riccati equations • Invariant manifolds • Existence theorem • Outflowing manifolds • Asymptotic

phase • Convergence for T 1 • A special case • Dichotomies and Lyapunov functions • Hamilton-Jacobi-Bellman-Isaacs equation • Introduction • Method of characteristics • The equation of Isaacs • The Hamiltonian version of Isaacs' equation • Bibliography

Modern Control Engineering Prentice Hall

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Optimal Control Theory Jones & Bartlett Publishers

About the book... The book provides an integrated treatment of continuous-time and discrete-time systems for two courses at postgraduate level, or one course at undergraduate and one course at postgraduate level. It covers mainly two areas of modern control theory, namely; system theory, and multivariable and optimal control. The coverage of the former is quite exhaustive while that of latter is adequate with significant provision of the necessary topics that enables a research student to comprehend various technical papers. The stress is on interdisciplinary nature of the subject. Practical control problems from various engineering disciplines have been drawn to illustrate the potential concepts. Most of the theoretical results have been presented in a manner suitable for digital computer programming along with the necessary algorithms for numerical computations.

Wiley
Well-written, practice-oriented textbook, and compact textbook Presents the contemporary state of the art of control theory and its applications Introduces traditional problems that are useful in the automatic control of technical processes, plus presents current issues of control Explains methods can be easily applied for the determination of the decision algorithms in computer control and management systems

Modern Control: State-Space Analysis and Design Methods
Walter de Gruyter GmbH & Co KG
Upper-level undergraduate text introduces aspects of optimal control theory: dynamic programming, Pontryagin's minimum principle, and numerical techniques for trajectory optimization. Numerous figures, tables. Solution guide available upon request. 1970 edition.

Systems Control Theory McGraw-Hill Companies
Geared primarily to an audience consisting of mathematically advanced undergraduate or beginning graduate students, this text may additionally be used by engineering students interested in a rigorous, proof-oriented systems course that goes beyond the classical frequency-domain material and more applied courses. The minimal mathematical background required is a working knowledge

of linear algebra and differential equations. The book covers what constitutes the common core of control theory and is unique in its emphasis on foundational aspects. While covering a wide range of topics written in a standard theorem/proof style, it also develops the necessary techniques from scratch. In this second edition, new chapters and sections have been added, dealing with time optimal control of linear systems, variational and numerical approaches to nonlinear control, nonlinear controllability via Lie-algebraic methods, and controllability of recurrent nets and of linear systems with bounded controls.

Advanced Modern Control System Theory and Design

Springer Science & Business Media

Striking a nice balance between mathematical rigor and engineering-oriented applications, this second edition covers the bedrock parts of classical control theory — the Routh-Hurwitz theorem and applications, Nyquist diagrams, Bode plots, root locus plots, and the design of controllers (phase-lag, phase-lead, lag-lead, and PID). It also covers three more advanced topics — non-linear control, modern control, and discrete-time control. This invaluable book makes effective use of MATLAB® as a tool in design and analysis. Containing 75 solved problems and 200

figures, this edition will be useful for junior and senior level university students in engineering who have a good knowledge of complex variables and linear algebra.

Modern Control Theory
Birkhäuser

This open access Brief introduces the basic principles of control theory in a concise self-study guide. It complements the classic texts by emphasizing the simple conceptual unity of the subject. A novice can quickly see how and why the different parts fit together. The concepts build slowly and naturally one after another, until the reader soon has a view of the whole. Each concept is illustrated by detailed examples and graphics. The full software code for each example is available, providing the basis for experimenting with various assumptions, learning how to write programs for control analysis, and setting the stage for future research projects. The topics focus on robustness, design trade-offs, and optimality. Most of the book develops classical linear theory. The last part of the book considers robustness with respect to nonlinearity and explicitly nonlinear extensions, as well as advanced topics such as adaptive control and model predictive control. New students, as well as scientists from other backgrounds who want a concise and easy-to-grasp coverage of control theory, will

benefit from the emphasis on concepts and broad understanding of the various approaches. Electronic codes for this title can be downloaded from https://extras.springer.com/?query=978-3-319-91707-8

Modern Control Theory and the Limits of Criminal Justice Oxford and Ibh Publishers

This supplement is meant for professors looking for ways to integrate more of the design process into their undergraduate controls course as well as improve their students' computer skills. In each chapter, a problem from the Modern Control Systems textbook has been changed into a design problem and various aspects of the design process are explored.

Linear Control Systems Technical Publications

In this book, Tewari emphasizes the physical principles and engineering applications of modern control system design. Instead of detailing the mathematical theory, MATLAB examples are used throughout.

Optimal Control and Estimation Addison Wesley Publishing Company

Graduate-level text provides introduction to optimal control theory for stochastic systems, emphasizing application of basic concepts to real problems.

Modern Control System Theory and Design

Modern Control Theory

Anyone seeking a gentle introduction to the methods of modern

control theory and engineering, written at the level of a first-year graduate course, should consider this book seriously. It contains: A generous historical overview of automatic control, from Ancient Greece to the 1970s, when this discipline matured into an essential field for electrical, mechanical, aerospace, chemical, and biomedical engineers, as well as mathematicians, and more recently, computer scientists; A balanced presentation of the relevant theory: the main state-space methods for description, analysis, and design of linear control systems are derived, without overwhelming theoretical arguments; Over 250 solved and exercise problems for both continuous- and discrete-time systems, often including MATLAB simulations; and Appendixes on MATLAB, advanced matrix theory, and the history of mathematical tools such as differential calculus, transform methods, and linear algebra. Another noteworthy feature is the frequent use of an inverted pendulum on a cart to illustrate the most important concepts of automatic control, such as: Linearization and discretization; Stability, controllability, and observability; State feedback, controller design, and optimal control; and Observer design, reduced order observers, and Kalman filtering. Most of the problems are given with solutions or

MATLAB simulations. Whether the book is used as a textbook or as a self-study guide, the knowledge gained from it will be an excellent platform for students and practising engineers to explore further the recent developments and applications of control theory.

Modern Control Theory
Prentice Hall
An excellent introduction to feedback control system design, this book offers a theoretical approach that captures the essential issues and can be applied to a wide range of practical problems. Its explorations of recent developments in the field emphasize the relationship of new procedures to classical control theory, with a focus on single input and output systems that keeps concepts accessible to students with limited backgrounds. The text is geared toward a single-semester senior course or a graduate-level class for students of electrical engineering. The opening chapters constitute a basic treatment of feedback design. Topics include a detailed formulation of the control design program, the fundamental issue of performance/stability robustness tradeoff, and the graphical design technique of loopshaping. Subsequent chapters extend the discussion of the loopshaping technique and connect it with notions of optimality. Concluding chapters examine

controller design via optimization, offering a mathematical approach that is useful for multivariable systems.

Modern Control Theory Wiley-Interscience

The book is written for an undergraduate course on the Modern Control Systems. It provides comprehensive explanation of state variable analysis of linear control systems and analysis of nonlinear control systems. Each chapter starts with the background of the topic. Then it gives the conceptual knowledge about the topic dividing it in various sections and subsections. Each chapter provides the detailed explanation of the topic, practical examples and variety of solved problems. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting. The book starts with explaining the concept of state variable and state model of linear control systems. Then it explains how to obtain the state models of various types of systems using phase variables, canonical variables, Jordan's canonical form and cascade programming. Then the book includes good coverage of the matrix algebra including eigen values, eigen vectors, modal matrix and diagonalization. It also includes the derivation of transfer function of the system from its

state model. The book further explains the solution of state equations including the concept of state transition matrix. It also includes the various methods of obtaining the state transition matrix such as Laplace transform method, Power series method, Cayley Hamilton method and Similarity transformation method. It further includes the detailed discussion of controllability and observability of systems. It also provides the discussion of pole placement technique of system design. The book teaches various types of nonlinearities and the nonlinear systems. The book covers the fundamental knowledge of analysis of nonlinear systems using phase plane method, isocline method and delta method. Finally, it explains stability analysis of nonlinear systems and Liapunov's stability analysis.

• Icebreaker: A Novel (the Maple Hills Series) By Hannah Grace
• 8 Rules Of Love: How To Find It, Keep It, And Let It Go By Jay Shetty
• Twisted Lies (twisted, 4)
• Reminders Of Him: A Novel By Colleen Hoover