

1. Record Nr.	UNISA996216867403316
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Titolo	Physiological control systems : analysis, simulation, and estimation // Michael C.K. Khoo
Pubbl/distr/stampa	New York : , : IEEE Press, , c2000 [Piscataqay, New Jersey] : , : IEEE Xplore, , [1999]
Descrizione fisica	1 PDF (xvii, 319 pages) : illustrations
Collana	IEEE Press series on biomedical engineering ; ; 2
Disciplina	571.7/015118
Soggetti	Health Occupations Models, Theoretical Engineering Biological Science Disciplines Biomedical Engineering Models, Biological Physiology Technology, Industry, and Agriculture Natural Science Disciplines Investigative Techniques Disciplines and Occupations Analytical, Diagnostic and Therapeutic Techniques and Equipment Technology, Industry, Agriculture Human Anatomy & Physiology Health & Biological Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface. Acknowledgments. Introduction. Mathematical Modeling. Static Analysis of Physiological Systems. Time-Domain Analysis of Linear Control Systems. Frequency-Domain Analysis of Linear Control Systems. Stability Analysis: Linear Approaches. Identification of Physiological Control Systems. Optimization in Physiological Control. Nonlinear Analysis of Physiological Control Systems. Complex

Dynamics in Physiological Control Systems. Appendix I: Commonly Used Laplace Transform Pairs. Appendix II: List of MATLAB and SIMULINK Programs/Functions. Index. About the Author.

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Sommario/riassunto

Many recently improved medical diagnostic techniques and therapeutic innovations have resulted from physiological systems modeling. This comprehensive book will help undergraduate and graduate students and biomedical scientists to gain a better understanding of how the principles of control theory, systems analysis, and model identification are used in physiological regulation. Ample Simulink<sup>®</sup> and MATLAB<sup>®</sup> examples throughout the text and posted at an IEEE FTP site will provide you with a hands-on approach for exploring modeling and analysis of biological control systems. You will learn about classical control theory and its application to physiological systems, and contemporary topics and methodologies shaping bioengineering research today. Discussions on the latest developments in system identification, optimal control, and nonlinear dynamical analysis will keep you up-to-date with recent bioengineering advances. From modeling and stability analysis to feedback control in physiological regulatory mechanisms, Physiological Control Systems provides an in-depth study of key bioengineering principles that is simply unmatched in the field. An Instructor Support FTP site is available from the Wiley editorial department: <ftp://ftp.ieee.org/uploads/press/hoo>.

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