



# Modeling and Simulation in Biomedical Engineering: Applications in Cardiorespiratory Physiology

By Willem van Meurs

McGraw-Hill Professional. Hardcover. Book Condition: New. Hardcover. 224 pages. Dimensions: 9.1in. x 5.9in. x 0.8in. THEORY AND PRACTICE OF MODELING AND SIMULATING HUMAN PHYSIOLOGY Written by a coinventor of the Human Patient Simulator (HPS) and past president of the Society in Europe for Simulation Applied to Medicine (SESAM), Modeling and Simulation in Biomedical Engineering: Applications in Cardiorespiratory Physiology is a compact and consistent introduction to this expanding field. The book divides the modeling and simulation process into five manageable steps-- requirements, conceptual models, mathematical models, software implementation, and simulation results and validation. A framework and a basic set of deterministic, continuous-time models for the cardiorespiratory system are provided. This timely resource also addresses advanced topics, including sensitivity analysis and setting model requirements as part of an encompassing simulation and simulator design. Practical examples provide you with the skills to evaluate and adapt existing physiologic models or create new ones for specific applications. Coverage includes: Signals and systems Model requirements Conceptual models Mathematical models Software implementation Simulation results and model validation Cardiorespiratory system model Circulation Respiration Physiologic control Sensitivity analysis of a cardiovascular model Design of model-driven acute care training simulators Uniquely qualified to author such a text, van

## Reviews

*This book is definitely not straightforward to get started on studying but extremely exciting to read. It is really simplistic but shocks in the 50 percent of the ebook. Once you begin to read the book, it is extremely difficult to leave it before concluding.*

-- **Ally Reichel**

*This publication is amazing. It is definitely basic but shocks in the fifty percent of your publication. You won't feel monotony at anytime of your own time (that's what catalogues are for concerning if you question me).*

-- **Prof. Kirk Cruickshank DDS**