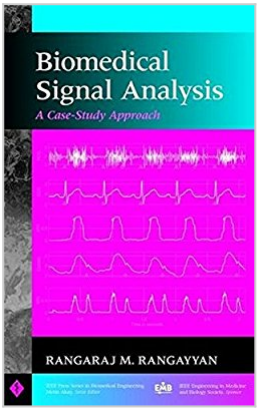

Biomedical Signal Analysis: A Case-Study Approach

By Rangaraj M. Rangayyan

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The development of techniques to analyze biomedical signals, such as electro-cardiograms, has dramatically affected countless lives by making possible improved noninvasive diagnosis, online monitoring of critically ill patients, and rehabilitation and sensory aids for the handicapped. Rangaraj Rangayyan supplies a practical, hands-on field guide to this constantly evolving technology in *Biomedical Signal Analysis*, focusing on the diagnostic challenges that medical professionals continue to face. Dr. Rangayyan applies a problem-solving approach to his study. Each chapter begins with the statement of a different biomedical signal problem, followed by a selection of real-life case studies and the associated signals. Signal processing, modeling, or analysis techniques are then presented, starting with relatively simple "textbook" methods, followed by more sophisticated research approaches. The chapter concludes with one or more application solutions; illustrations of real-life biomedical signals and their derivatives are included throughout.

Among the topics addressed are:

- Concurrent, coupled, and correlated processes
- Filtering for removal of artifacts
- Event detection and characterization
- Frequency-domain characterization
- Modeling biomedical systems
- Analysis of nonstationary signals
- Pattern classification and diagnostic decision

The chapters also present a number of laboratory exercises, study questions, and problems to facilitate preparation for class examinations and practical applications. *Biomedical Signal Analysis* provides a definitive resource for upper-level under-graduate and graduate engineering students, as well as for practicing engineers, computer scientists, information technologists, medical physicists, and data processing specialists.

An authoritative assessment of the problems and applications of biomedical signals, rooted in practical case studies

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Editorial Review

Review
"In addition to serving as an excellent text in biomedical signal processing, this book can serve as a great reference source…there is a great need for a book on biomedical signal processing…this easy to follow book fills that need." (*Annals of Biomedical Engineering*, July 2002)

"This book takes a problem-solving approach to biomedical signal analysis." (*IEEE Signal Processing Magazine*, Vol. 19, No. 4, July 2002)

From the Back Cover
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