Statistical Optimization of Biological Systems

Tapobrata Panda, Thomas Theodore, R. Arun Kumar
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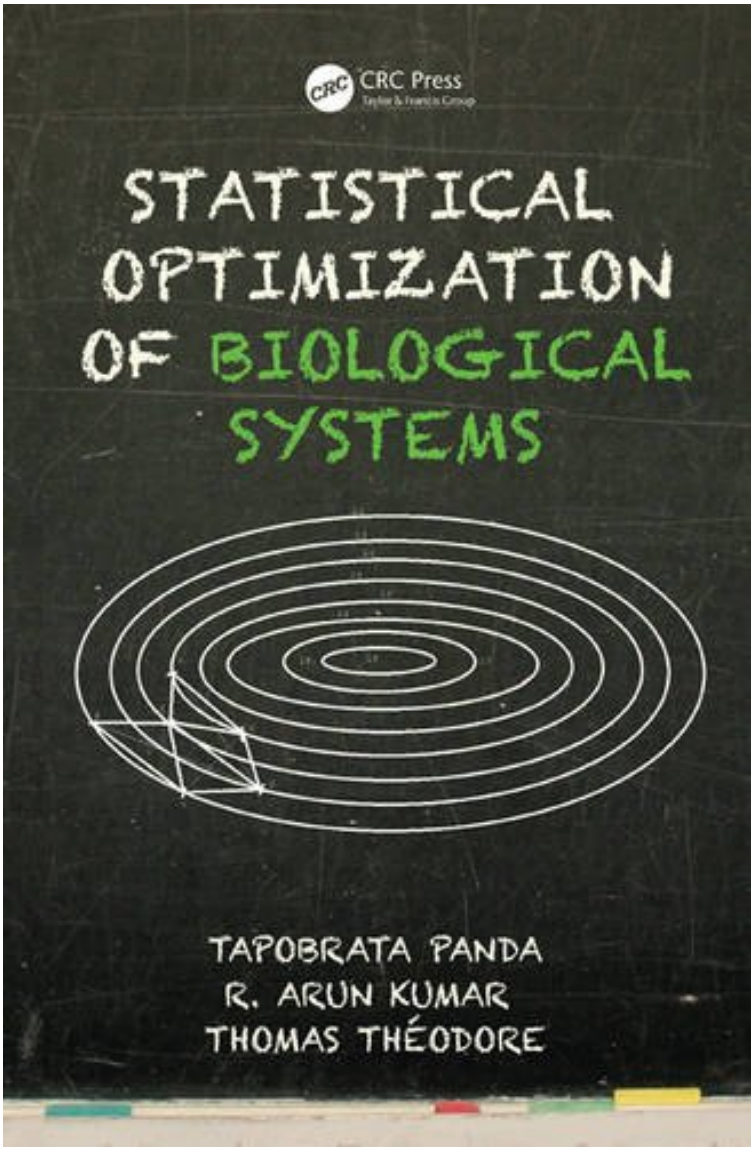

#9760203 in Books 2015-11-05Original language:EnglishPDF # 1 9.50 x 6.25 x .75l, .0 #File Name: 1466587083296 pages | File size: 48.Mb

Tapobrata Panda, Thomas Theodore, R. Arun Kumar : Statistical Optimization of Biological Systems before purchasing it in order to gage whether or not it would be worth my time, and all praised Statistical Optimization of Biological Systems:

A number of books written by statisticians address the mathematical optimization of biological systems, but do not

directly address statistical optimization. Statistical Optimization of Biological Systems covers the optimization of bioprocess systems in its entirety, devoting much-needed attention to the experimental optimization of biological systems using statistical techniques. Employing real-life bioprocess optimization problems and their solutions as examples, this book: Describes experimental design from identifying process variables to selecting a screening design, applying response surface methodology, and conducting regression modeling Demonstrates the statistical analysis and optimization of different experimental designs, the results of which are used to establish important variables and optimum settings Details the optimization techniques employed to determine optimum levels of the process variables for both single- and multiple-response systems Discusses important experimental designs, such as evolutionary operation programs and Taguchis designs Delineates the concept of hybrid experimental design using the essence of a genetic algorithm Statistical Optimization of Biological Systems examines the complex nature of biological systems, the need for optimization, and the rationale of statistical and non-statistical optimization methods. More importantly, the book explains how to successfully apply mathematical and statistical techniques to the optimization of biological systems.

About the AuthorTapobrata Panda is a Professor at the Indian Institute of Technology Madras, Chennai, India. He received a BSc (honors) in Chemistry from the University of Calcutta, Kolkata, India; a BTech and MTech in Food Technology and Biochemical Engineering from Jadavpur University, Kolkata, India; and a PhD in Biochemical Engineering from the Indian Institute of Technology Delhi, New Delhi. Professor Panda is widely published and a member of several journals editorial boards. His papers have an h-index (Google Scholar) of 30 and i-10 value of 64. His areas of interest include hybrid experimental design, bio-MEMS, biological synthesis of nanoparticles, and design of therapeutic molecules and enzymes. R. Arun Kumar is currently working with an oil and gas super major in liquefied natural gas business as a Process Engineer. Previously, he worked for an international oil and gas service company. He received a BTech in Chemical Engineering from the Indian Institute of Technology Madras, Chennai, India; and was in the top 1% of the National Astronomy and Physics Olympiad. His areas of interest include biochemical engineering, genetic algorithms applied to biological systems, and design of experiments. Thomas Thodore is an Associate Professor of Chemical Engineering at the Siddaganga Institute of Technology, Tumkur, India. He received Chemical Engineering degrees from Annamalai University, Chidambaram, India, and Alagappa College of Technology, Chennai, India; an MS in Bioengineering from the cole Suprieure de Physique et de Chimie Industrielles de la Ville de Paris, France; an MEngSc in Biopharmaceutical Engineering from University College Dublin, Ireland; and a PhD in Biochemical Engineering from the Indian Institute of Technology Madras, Chennai, India. His areas of interest include therapeutic proteins and biodegradable polymers.