

Modeling of neural networks has been in the past mostly associated with the computer analogy. All this is to change in a volume dedicated to providing a clear exposition of the biophysical and biochemical processes that underpin the functioning of single neurons in networks. The contents serve as an invaluable reference to the subject of biologically more plausible neural networks. This book will provide a thorough understanding of quantitative modeling with each chapter containing abundant references and a set of problems to challenge the inspiring post graduate student or researcher.

"This book covers network models in the search for a better understanding of brain function—the overall intention is to develop the foundations of neural noncomputation."

Gilbert A. Chauvet

*Professor of Theoretical Neurobiology
University of Southern California*

"This book is a must for anyone who is serious about modeling realistic neural networks. An interdisciplinary audience will appreciate learning about neuroscience."

Algis Garliauskas

*Professor and Head of Laboratory for Neuroinformatics
Institute of Mathematics and Informatics, Vilnius*

"Self-organization, selection, and dynamics are all fundamental principles of functional neuroscience. This book covers neural networks inspired by biophysics."

Aike Guo

*Professor and Head of Laboratory for Learning and Memory
Biophysics Institute Academia Sinica, Beijing*

"The analytical approaches covered in this book are at the cutting edge of modeling in neuroscience."

Henri Korn

*Professor of Cellular Neurobiology
Pasteur Institute*

"Few books can boast such multidisciplinary approaches to neuroscience research. This book goes beyond current models of neural networks by searching for meaningful answers to realistic questions."

Dennis A. Turner

*Professor of Neurosurgery and Neurobiology
Duke University Medical Center*