

Biophysical Neural Networks

Foundations of Integrative Neuroscience

Roman R. Poznanski

0-913113-90-5

12001 by Mary Ann Liebert, Inc.,

Larchmont,

	<i>Preface</i>	v
	<i>Contributors</i>	vii
Chapter 1	Introduction to Integrative Neuroscience <i>R.R. Poznanski</i>	1
Chapter 2	A Biophysical Perspective on Neural Information Processing <i>K.N. Leibovic</i>	23
Chapter 3	Morphofunctional Roles of Simulated Neurons in Volume Transmission <i>L. da F Costa, L.G. Rios-Filho, J.S. Tanaka, and E.T.M. Manoel</i>	43
Chapter 4	Biophysical Model of Retinal Horizontal Cells <i>Y. Hayashida and T. Yagi</i>	75
Chapter 5	The Functional Role of N-Methyl-D-Aspartate Receptors in the Lateral Amygdala <i>H.T. Blair and J.E. LeDoux</i>	95
Chapter 6	Hebbian Learning in a Network of Biochemical Neurons <i>M. Okamoto and K Tanaka</i>	123
Chapter 7	A Physicochemical Basis of Synaptic Transmission in the Myenteric Plexus <i>R.N. Miftakhov and J. Christensen</i>	147
Chapter 8	Dendritic Spike-Like Potentials in a Neural Network <i>R.R. Poznanski</i>	177
Chapter 9	Mathematical Reduction Techniques for Modeling Biophysical Neural Networks <i>P.C. Bressloff and S. Coombes</i>	215
Chapter 10	Nonlinear Dynamics of Small-Scale Biophysical Neural Networks <i>S. Doi and S. Kumagai</i>	261

Chapter 11	Comparison Between Spike and Rate Models in Networks of Integrate-and-Fire Neurons <i>F. Chapeau-Blondeau</i>	303
Chapter 12	Neural Dynamics of Vocal Processing in the Auditory Cortex <i>Y. Yamaguchi, J. Horikawa, and I. Taniguchi</i>	343
Chapter 13	Characterization of Post-Ontogenic Functional Connectivity <i>R.J. MacGregor, F. G. Ascarrunz, and M.A. Kiskey</i>	363
Chapter 14	Chaotic Dynamics of Field Potentials Simulated by a Neural Mass Network <i>VI. Sbitnev and N.B. Ampilova</i>	389
Chapter 15	Advanced Numerical Methods for Modeling Dendrites <i>K.A. Lindsay; J. M. Ogden, and J.R. Rosenberg</i>	411
	<i>Index</i>	495