

Book Reviews

Methods in Neuronal Modeling, edited by Christof Koch and Idan Segev. Cambridge, MA: The MIT Press, 1989, 524 pp. Price: \$45.00

A resurgence of interest in neuronal modeling has followed the development of algorithms for the reliable training of multilayer nets and the general availability of computers with sufficient power to simulate neural nets. This book is a useful resource for those wishing to learn contemporary modeling of the neuronal system from a broad biological perspective. Bringing together work from 24 authors in the field, this book's 13 chapters address the function of neurons at three levels: membrane, small circuits, and large systems. The book is based on a series of lectures given at the Marine Biological Laboratory in Woods Hole, with an intended audience of advanced undergraduate or graduate students interested in computational neuroscience, as well as experimentalists and modelers. Some chapters focus on mathematical treatments, whereas others concentrate on conceptual descriptions. Readers who have some knowledge of biophysics, neurophysiology, mathematics, and computer programming will best benefit from this text.

The first chapters cover dendritic cable theory, membrane models, calcium dynamics, plus neural excitability and oscillations. Some of this material is classic and has long served as the foundation for neuronal modeling, although much of it is presented in the context of modern computer simulation techniques. Chapter 3 is of special interest as an introduction to contemporary applications, since it mentions many simulation programs in current use and also describes use of the SPICE circuit analysis program for modeling. Several chapters are devoted to biological networks including small invertebrate nets, central pattern generators, and auditory and visual networks. These present experimental data followed by development of mathematical models. Remaining chapters cover modeling and simulation techniques, large-scale nets, numerical methods, and the use of parallel computers in neural modeling.

In summary, this book presents a useful blending of biological system measurements with neural modeling and simulation techniques applied at many levels in the nervous system. Those wishing to develop

model systems of their own should find it especially useful.

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Maudsley Monograph: No. 31: The Neuropathology of Temporal Lobe Epilepsy, by C. J. Bruton. New York: Oxford University Press, 1988, 158 pp. Price: \$47.00.

This monograph represents a thorough clinical pathological study of 249 patients with intractable temporal lobe epilepsy who underwent surgical therapy over a 25-year period beginning in January 1950.

Based on histological findings, patients were divided into eight diagnostic groups. Clinical and demographic characteristics of each of the patients were analyzed. Conclusions were drawn regarding the clinical presentations and surgical outcome of the diagnostic groups. As the author points out, the results of this study do not conflict with previous predictions but enlarge its scope.

The monograph is an extremely well-written analysis of one of the most important series available. It is likely to become a major reference work for anyone interested in the clinical pathology and surgical treatment of temporal lobe epilepsy.

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The Human Hippocampus: An Atlas of Applied Anatomy, by Henri M. Duvernoy. New York: Springer-Verlag, 1988, 166 pp. Price: \$84.50.

The human hippocampus is a mysteriously compelling structure that links emotion and mind and