

Bibliography

- [1] A. Hodgkin and A. Huxley. The components of membrane conductance in the giant axon of *Loligo*. *J. Physiol.*, 116:473–496, 1952.
- [2] E. D. Adrian. The impulses produced by sensory nerve endings. *J. Physiol.*, 61:49–72, 1926.
- [3] E. D. Adrian. *The basis of sensation*. W. W. Norton, New York, 1928.
- [4] L. Borg-Graham. Additional Efficient Computation of Branched Nerve Equations: Adaptive Time Step and Ideal Voltage Clamp. *Journal of Computational Neuroscience*, 8(3):209–226, 2000.
- [5] L. Borg-Graham. The Surf-Hippo Neuron Simulation System. 2003.
- [6] B. Brembs. Private communication.
- [7] G. Bugmann. Summation and multiplication: two distinct operation domains of leaky integrate-and-fire neurons. *Network*, 2:489509, 1991.
- [8] C. Burges. A Tutorial on Support Vector Machines for Pattern Recognition. *Data Mining and Knowledge Discovery*, 2:121–167, 1998.
- [9] C. F. Bear, B. W. Connors and M. A. Paradiso. *Neuroscience: exploring the brain*. Williams and Wilkins, 1996.
- [10] C. F. Stevens and A. Zador. Neural coding: The enigma of the brain. *Current Biology*, 5:13701371, 1995.
- [11] C. G. Evans, S. C. Rosen, E. C. Cropper. Regulation of spike initiation and propagation in an *Aplysia* sensory neuron. *J. Neuroscience*, 23(7):2920–2931, April 2003.
- [12] C. Koch. *Biophysics of computation:information processing in single neurons*. Oxford University Press, 1999.
- [13] C. S. Horstmann and G. Cornell. *Core Java 2*. Sun Microsystems Press, 2002.

- [14] D. Beeman, J. M. Bower, E. De Schutter, E. N. Efthimiadis, N. Goddard and J. Leigh. The GENESIS Simulator-based Neuronal Database. In S. H. Koslow and M. F. Huerta, editor, *Neuroinformatics: An Overview of the Human Brain Project*. Lawrence Erlbaum Associates, Mahwah, 1997.
- [15] E. C. Cropper, C. G. Evans. Characterization of a second spike initiation site in the *Aplysia* mechanoafferent B21: implications for compartmentalization of function. *Annual meeting of the Society for Neuroscience, Washington*, 2004.
- [16] E. C. Cropper, C. G. Evans, S. C. Rosen. Multiple mechanisms for peripheral activation of the peptide-containing radula mechanoafferent neurons B21 and B22 of *Aplysia*. *J. Neurophysiol*, 76:1344–1351, 1996.
- [17] E. R. Kandel, J. H. Schwartz, T. M. Jessel (editors). *Principles of Neural Science (Fourth edition)*. McGraw-Hill, 2000.
- [18] E. Tapia and R. Rojas. Recognition of On-Line Handwritten Mathematical Expressions using a Minimum Spanning Tree Construction and Symbol Dominance. In Josep Lladós and Young-Bin Kwon, editors, *Graphics Recognition: Recent Advances and Perspectives (Fifth International Workshop GREC'2003)*. Morgan Kaufman, San Mateo, 2004.
- [19] E. Tapia, R. Rojas. Recognition of Handwritten Digits in the E-Chalk System using Support Vector Machines. Technical Report B-02-14, FU Berlin, Institut für Informatik, October 2002.
- [20] G. B. Ermentrout. Channeling with Bard. *Comp. Neuroscience*, Januar 1998.
- [21] F. Alimoglu, E. Alpaydin. Methods of Combining Multiple Classifiers Based on Different Representations for Pen-based Handwriting Recognition. *Proceedings of the Fifth Turkish Artificial Intelligence and Artificial Neural Networks Symposium*, June 1996.
- [22] F. Rieke, D. Warland, R. Steveninck and W. Bialek. *Spikes - Exploring the neural code*. MIT Press, Cambridge, MA., 1996.
- [23] G. Friedland, L. Knipping, R. Rojas. E-Chalk: Technical Description. Technical Report B-02-11, FU Berlin, Institut für Informatik, May 2002.
- [24] G. Friedland, L. Knipping, R. Rojas, C. Zick. Towards a Generic Cross Platform Media Editor: An Editing Tool for E-Chalk. *Proceedings of the Informatiktage 2002, Gesellschaft für Informatik e.V.*, November 2002.
- [25] G. Friedland, L. Knipping, R. Rojas, C. Zick. Mapping the Classroom into the Web: Case Studies from several Institutions. *Proceedings of the 12th EDEN Annual Conference*, June 2003.

- [26] W. Gerstner. Population dynamics of spiking neurons: fast transients, asynchronous states and locking. *Neural Comput.*, 12:43–89, 2000.
- [27] S. Haykin. *Neural Networks*. Prentice Hall, Upper Sadle River, NJ, 1994.
- [28] B. Hille. *Ionic Channels of Excitable Membrane*. Sunderland, MA : Sinauer Associates, 1992.
- [29] M. Hines. Efficient computation of branched nerve equations. *J. Biomed. Comp.*, 15:69–76, 1984.
- [30] M. Hines. A program for simulation of nerve equations with branching geometries. *International Journal of Biomedical Computing*, 24:33–68, 1989.
- [31] M. Hines. NEURON - A Program for Simulation of nerve Equations. In F. Eeckman, editor, *Neural Systems: Analysis and Modelling*, pages 127–136. Kluwer Academic Publishers, 1993.
- [32] M. Hines. The NEURON simulation program. In J. Skrzypek, editor, *Neural Network Simulation Environments*. Kluwer Academic Publishers, Norwell, Mass, 1993.
- [33] I. Segev and R. Burke. Compartmental models of complex neurons. In C. Koch and I. Segev, editor, *Methods in Neuronal Modeling*. MIT Press, Cambridge, Mass, 1989.
- [34] I. Ziv, D. A. Baxter and J. H. Byrne. Simulatipon for neural networks and action potentials: Description and Application. *J. Neurophysiol.*, 71:294–308, 1994.
- [35] J. Bower and D. Beeman. *The Book of Genesis: Exploring Realistic Neural Models with the GEneral NEural SImulation System*. Springer TELOS, 1998.
- [36] J. G. Nicholls, A. R. Martin, B. G. Wallace and P. A. Fuchs. *From Neuron to Brain (Fourth edition)*. Sunderland, MA : Sinauer Associates, 2001.
- [37] J. Hertz, A. Krogh, R. G. Palmer. *Introduction to the Theory of Neural Computation*. Addison-Wesley, Redwood City, 1991.
- [38] J. M. Bower, D. Beeman and M. Hucka. The GENESIS Simulation System. In M.A. Arbib, editor, *The Handbook of Brain Theory and Neural Networks*. MIT Press, Cambridge,MA, 2002.
- [39] L. Knipping. *An Electronic Chalkboard for Classroom and Distance Teaching*. PhD thesis, Free University Berlin, 2004.
- [40] O. Kroupina. NeuroSim: Neural Simulation System of biological neural networks. Technical Report B-03-17, Doktoranden-Workshop 2003, Freie Universität Berlin, Institut für Informatik, December 2003.

- [41] M. A. Wilson, U. S. Bhalla, J. D. Uhley and J. M. Bower. GENESIS: A system for simulating neural networks. In *Advances in Neural Information Processing Systems*, pages 348–353. Morgan Kaufman, San Mateo, 1989.
- [42] M. Hall and L. Brown. *Core Web Programming*. Sun Microsystems Press, 2002.
- [43] M. L. Hines and N. T. Carnevale. The NEURON Simulation Environment. *Neural Computation*, 9:1179–1209, 1997.
- [44] M. L. Hines and N. T. Carnevale. Expanding NEURON’s Repertoire of Mechanisms with NMODL. *Neural Computation*, 12:995–1007, 2000.
- [45] M. L. Hines and N. T. Carnevale. NEURON: a tool for neuroscientists. *The Neuroscientist*, 7:123–135, 2001.
- [46] M. L. Hines and N. T. Carnevale. The NEURON Simulation Environment. In M. A. Arbib, editor, *The Handbook of Brain Theory and Neural Networks*. MIT Press, Cambridge, MA, 2 edition, 2002.
- [47] M. Nelson and J. M. Bower. Simulating neurons and neuronal networks on parallel computers. In C. Koch and I. Segev, editor, *Methods in Neuronal Modeling*, chapter 12, pages 397–438. MIT Press, Cambridge, Mass, 1989.
- [48] W. Maass. Lower bounds for the computational power of spiking neurons. *Neural Comput.*, 8:1–40, 1996.
- [49] M. Mascagni. Numerical methods for neuronal modelling. In C. Koch and I. Segev, editors, *Methods in Neuronal Modeling*. MIT Press, Cambridge, Mass, 1989.
- [50] N. Brunel, F. Chance, N. Fourcaud and L. F. Abbott. Effects of synaptic noise and filtering on the frequency response of spiking neurons. *Phys. Rev. Lett.*, 86:2186–2189, 2001.
- [51] O. Kroupina and R. Rojas. NeuroSim: Neural Simulation System of biological neural networks. Technical Report B-03-12, Freie Universität Berlin, Institut für Informatik, 2003.
- [52] O. Kroupina and R. Rojas. Client-Server Architecture for a Neural Simulation Tool. *Proceedings of the WSEAS International Conference on Mathematical Biology and Ecology*, August 2004.
- [53] O. Kroupina and R. Rojas. A survey of compartmental modelling packages. Technical Report B-04-08, Freie Universität Berlin, Institut für Informatik, 2004.
- [54] P. R. Adams. The platonic neuron gets the hots. *Current Biology*, 5:625–627, 1992.

- [55] R. J. MacGregor. *Neural and Brain Modelling*. Academic Press, San Diego, 1987.
- [56] R. Llinas. The intrinsic electrophysiological properties of mammalian neurons: Insights into central nervous system function. *Science*, 242:1654–1664, 1988.
- [57] R. Rojas, G. Friedland, L. Knipping, W. L. Raffel. Elektronische Kreide: Eine Java-Multimedia-Tafel für den Präsenz- und Fernunterricht. Technical Report B-00-17, FU Berlin, Institut für Informatik, October 2000.
- [58] W. Rall. Branching dendritic trees and motoneuron membrane resistivity. *Exp. Neurol.*, 1:491–527, 1959.
- [59] W. Rall. Theoretical significance of dendritic tree for input-output relation. In R.F.Reiss, editor, *Neural Theory and Modelling*, pages 73–97. Standford University Press, Standford, 1964.
- [60] W. Rall. Cable Theory for Dendritic Neurons. In C. Koch and I. Segev, editors, *Methods in Neuronal Modeling*. MIT Press, Cambridge, Mass, 1989.
- [61] R. Rojas. *Neural Networks – A Systematic Introduction*. Springer, Berlin, 1996.
- [62] S. C. Rosen, M. W. Miller, C. G. Evans, E. C. Cropper, I. Kupfermann. Diverse synaptic connections between peptidergic radula mechanoafferent neurons and neurons in the feeding system of *Aplysia*. *J. Neurophysiol*, 83:1605–1620, 2000.
- [63] S. Thorpe, D. Fize and C. Marlot. Speed of processing in the human visual system. *Nature*, 381:520–522, 1996.
- [64] E. De Schutter. Nodus, A User Friendly Neuron Simulator for Macintosh Computers. In F. Eeckman, editor, *Neural Systems: Analysis and Modelling*, pages 113–119. Kluwer Academic Publishers, 1993.
- [65] R. Sedgewick. *Algorithms in C*. Addison Wesley, 2003.
- [66] R. G. Smith. NeuronC: a computational language for investigating functional architecture of neural circuits. *J. Neurosci. Methods*, 43:83–108, 1992.
- [67] W. R. Softky. Simple codes versus efficient codes. *Curr. Opin. Neurobiol.*, 5:239–247, 1995.
- [68] E. Tapia. *Understanding Mathematics: A system for the Recognition of On-Line Handwritten Mathematical Expressions*. PhD thesis, Free University Berlin, December 2004.
- [69] H. Tuckwell. *Introduction to theoretical neurobiology*. Cambridge University Press, 1988.

- [70] C. von der Walsburg. The correlation theory of brain function. Technical Report 81-2, MPI für Biophysikalische Chemie, Göttingen, 1981.
- [71] W. Maass and C. M. Bishop. *Pulsed Neural Networks*. The MIT Press, Cambridge, Massachusetts, 1999.
- [72] W. Bialek, F. Rieke, R. R. de Ruyter van Stevenick and D. Warland. Reading a neural code. *Science*, 252:1854–1857, 1991.
- [73] W. Gerstner and W. M. Kistler. *Spiking Neuron Models. Single Neurons, Populations, Plasticity*. Cambridge University Press, 2002.
- [74] W. W. Lytton. *From computer to brain*. Springer, 2002.