William B Levy

List of Publications by Year
in descending order

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41 papers	2,287 citations	623574 14 h-index	330025 37 g-index
45 all docs	45 docs citations	45 times ranked	1436 citing authors

#	Article	IF	Citations
1	Synapses as associative memory elements in the hippocampal formation. Brain Research, 1979, 175, 233-245.	1.1	551
2	Energy Efficient Neural Codes. Neural Computation, 1996, 8, 531-543.	1.3	505
3	Energy-Efficient Neuronal Computation via Quantal Synaptic Failures. Journal of Neuroscience, 2002, 22, 4746-4755.	1.7	201
4	Changes in the numerical density of synaptic contacts with long-term potentiation in the hippocampal dentate gyrus. Journal of Comparative Neurology, 1986, 253, 466-475.	0.9	188
5	Changes in the postsynaptic density with long-term potentiation in the dentate gyrus. Journal of Comparative Neurology, 1986, 253, 476-482.	0.9	186
6	Interpreting hippocampal function as recoding and forecasting. Neural Networks, 2005, 18, 1242-1264.	3.3	96
7	A quantitative anatomical study of the granule cell dendritic fields of the rat dentate gyrus using a novel probabilistic method. Journal of Comparative Neurology, 1982, 212, 131-145.	0.9	95
8	Metabolic Energy Cost of Action Potential Velocity. Journal of Neurophysiology, 2006, 96, 1237-1246.	0.9	63
9	Ovarian steroidal control of connectivity in the female hippocampus: An overview of recent experimental findings and speculations on its functional consequences. , 1997, 7, 239-245.		62
10	Communication consumes 35 times more energy than computation in the human cortex, but both costs are needed to predict synapse number. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	47
11	A Mathematical Theory of Energy Efficient Neural Computation and Communication. IEEE Transactions on Information Theory, 2010, 56, 852-874.	1.5	46
12	Analysis of the Optimal Channel Density of the Squid Giant Axon Using a Reparameterized Hodgkinâ€“Huxley Model. Journal of Neurophysiology, 2004, 91, 2541-2550.	0.9	30
13	Dendritic caliber and the 3/2 power relationship of dentate granule cells. Journal of Comparative Neurology, 1984, 227, 589-596.	0.9	27
14	Quantifying the Role of Inhibition in Associative Long-Term Potentiation in Dentate Granule Cells With Computational Models. Journal of Neurophysiology, 1997, 78, 103-116.	0.9	19
15	Information maintenance and statistical dependence reduction in simple neural networks. Biological Cybernetics, 1992, 67, 469-477.	0.6	17
16	The influence of limited presynaptic growth and synapse removal on adaptive synaptogenesis. Biological Cybernetics, 1994, 71, 461-468.	0.6	16
17	A consensus layer V pyramidal neuron can sustain interpulse-interval coding. PLoS ONE, 2017, 12, e0180839.	1.1	12
18	Adaptive synaptogenesis constructs networks that maintain information and reduce statistical dependence. Biological Cybernetics, 1993, 70, 81-87.	0.6	11

#	ARTICLE	IF	CITATIONS
19	Contrasting rules for synaptogenesis, modification of existing synapses, and synaptic removal as a function of neuronal computation. Neurocomputing, 2004, 58-60, 343-350.	3.5	11
20	A hippocampal model predicts a fluctuating phase transition when learning certain trace conditioning paradigms. Cognitive Neurodynamics, 2007, 1, 143-155.	2.3	11
21	Energy-efficient interspike interval codes. Neurocomputing, 2005, 65-66, 371-378.	3.5	10
22	Neural Computation From First Principles: Using the Maximum Entropy Method to Obtain an Optimal Bits-Per-Joule Neuron. IEEE Transactions on Molecular, Biological, and Multi-Scale Communications, 2016, 2, 154-165.	1.4	9
23	Adaptive Synaptogenesis Constructs Neural Codes That Benefit Discrimination. PLoS Computational Biology, 2015, 11, e1004299.	1.5	9
24	Constructing multilayered neural networks with sparse, data-driven connectivity using biologically-inspired, complementary, homeostatic mechanisms. Neural Networks, 2020, 122, 68-93.	3.3	8
25	Limited synapse overproduction can speed development but sometimes with long-term energy and discrimination penalties. PLoS Computational Biology, 2017, 13, e1005750.	1.5	7
26	Configural representations in transverse patterning with a hippocampal model. Neural Networks, 2004, 17, 175-190.	3.3	6
27	Mutual Information and Parameter Estimation in the Generalized Inverse Gaussian Diffusion Model of Cortical Neurons. IEEE Transactions on Molecular, Biological, and Multi-Scale Communications, 2016, 2, 166-182.	1.4	6
28	The statistical relationship between connectivity and neural activity in fractionally connected feed-forward networks. Biological Cybernetics, 1999, 80, 131-139.	0.6	5
29	The cost of linearization. Journal of Computational Neuroscience, 2009, 27, 259-275.	0.6	5
30	Persistent sodium is a better linearizing mechanism than the hyperpolarization-activated current. Neurocomputing, 2007, 70, 1635-1639.	3.5	4
31	Linearization of excitatory synaptic integration at no extra cost. Journal of Computational Neuroscience, 2018, 44, 173-188.	0.6	4
32	Computing conditional probabilities in a minimal CA3 pyramidal neuron. Neurocomputing, 2005, 65-66, 297-303.	3.5	2
33	Conduction velocity costs energy. Neurocomputing, 2005, 65-66, 907-913.	3.5	2
34	Decision functions that can support a hippocampal model. Neurocomputing, 2006, 69, 1238-1243.	3.5	2
35	Gamma oscillations in a minimal CA3 model. Neurocomputing, 2006, 69, 1244-1248.	3.5	2
36	Information transfer by energy-efficient neurons. , 2009, , .		2

#	Article	IF	Citations
37	Design principles and specifications for neural-like computation under constraints on information preservation and energy costs as analyzed with statistical theory. , 2012, , .		2
38	Activity affects trace conditioning performance in a minimal hippocampal model. Neurocomputing, 2005, 65-66, 315-321.	3.5	1
39	Theta-modulated input reduces intrinsic gamma oscillations in a hippocampal model. Neurocomputing, 2007, 70, 2074-2078.	3.5	1
40	Controlling information flow and energy use via adaptive synaptogenesis. , 2016, , .		1
41	Neuronal dynamics during the learning of trace conditioning in a CA3 model of hippocampal function. Cognitive Neurodynamics, 2014, 8, 127-141.	2.3	0