

Walter Senn

List of Publications by Year in descending order

Source: <https://exaly.com/author-pdf/8914927/publications.pdf>

Version: 2024-02-01

85
papers

4,870
citations

172207

29
h-index

106150

65
g-index

93
all docs

93
docs citations

93
times ranked

4703
citing authors

#	ARTICLE	IF	CITATIONS
1	A deep learning framework for neuroscience. <i>Nature Neuroscience</i> , 2019, 22, 1761-1770.	7.1	563
2	Dendritic encoding of sensory stimuli controlled by deep cortical interneurons. <i>Nature</i> , 2009, 457, 1137-1141.	13.7	326
3	Learning Real-World Stimuli in a Neural Network with Spike-Driven Synaptic Dynamics. <i>Neural Computation</i> , 2007, 19, 2881-2912.	1.3	310
4	Top-down Dendritic Input Increases the Gain of Layer 5 Pyramidal Neurons. <i>Cerebral Cortex</i> , 2004, 14, 1059-1070.	1.6	279
5	Spike-Time-Dependent Plasticity and Heterosynaptic Competition Organize Networks to Produce Long Scale-Free Sequences of Neural Activity. <i>Neuron</i> , 2010, 65, 563-576.	3.8	253
6	Neocortical Pyramidal Cells Respond as Integrate-and-Fire Neurons to In Vivo "Like Input Currents. <i>Journal of Neurophysiology</i> , 2003, 90, 1598-1612.	0.9	224
7	A Synaptic Explanation of Suppression in Visual Cortex. <i>Journal of Neuroscience</i> , 2002, 22, 10053-10065.	1.7	192
8	Modeling of Spontaneous Activity in Developing Spinal Cord Using Activity-Dependent Depression in an Excitatory Network. <i>Journal of Neuroscience</i> , 2000, 20, 3041-3056.	1.7	182
9	An Algorithm for Modifying Neurotransmitter Release Probability Based on Pre- and Postsynaptic Spike Timing. <i>Neural Computation</i> , 2001, 13, 35-67.	1.3	180
10	A cospectral correction model for measurement of turbulent NO ₂ flux. <i>Boundary-Layer Meteorology</i> , 1995, 74, 321-340.	1.2	170
11	Learning by the Dendritic Prediction of Somatic Spiking. <i>Neuron</i> , 2014, 81, 521-528.	3.8	149
12	Repetitive TMS over the human oculomotor cortex: Comparison of 1-Hz and theta burst stimulation. <i>Neuroscience Letters</i> , 2006, 409, 57-60.	1.0	136
13	Climbing Neuronal Activity as an Event-Based Cortical Representation of Time. <i>Journal of Neuroscience</i> , 2004, 24, 3295-3303.	1.7	133
14	Nerve Injury-Induced Neuropathic Pain Causes Disinhibition of the Anterior Cingulate Cortex. <i>Journal of Neuroscience</i> , 2014, 34, 5754-5764.	1.7	129
15	Extending lifetime of plastic changes in the human brain. <i>European Journal of Neuroscience</i> , 2006, 24, 2961-2966.	1.2	120
16	Hyperpolarization-Activated Current I _h Disconnects Somatic and Dendritic Spike Initiation Zones in Layer V Pyramidal Neurons. <i>Journal of Neurophysiology</i> , 2003, 90, 2428-2437.	0.9	113
17	Multiple Time Scales of Temporal Response in Pyramidal and Fast Spiking Cortical Neurons. <i>Journal of Neurophysiology</i> , 2006, 96, 3448-3464.	0.9	108
18	Matching Recall and Storage in Sequence Learning with Spiking Neural Networks. <i>Journal of Neuroscience</i> , 2013, 33, 9565-9575.	1.7	107

#	ARTICLE	IF	CITATIONS
19	Dopamine Increases the Gain of the Input-Output Response of Rat Prefrontal Pyramidal Neurons. <i>Journal of Neurophysiology</i> , 2008, 99, 2985-2997.	0.9	95
20	Minimal Models of Adapted Neuronal Response to In Vivo-Like Input Currents. <i>Neural Computation</i> , 2004, 16, 2101-2124.	1.3	89
21	Spike-Based Reinforcement Learning in Continuous State and Action Space: When Policy Gradient Methods Fail. <i>PLoS Computational Biology</i> , 2009, 5, e1000586.	1.5	82
22	Reinforcement learning in populations of spiking neurons. <i>Nature Neuroscience</i> , 2009, 12, 250-252.	7.1	77
23	Somato-dendritic Synaptic Plasticity and Error-backpropagation in Active Dendrites. <i>PLoS Computational Biology</i> , 2016, 12, e1004638.	1.5	61
24	Convergence of stochastic learning in perceptrons with binary synapses. <i>Physical Review E</i> , 2005, 71, 061907.	0.8	53
25	The response of cortical neurons to in vivo-like input current: theory and experiment. <i>Biological Cybernetics</i> , 2008, 99, 279-301.	0.6	47
26	Spatio-Temporal Credit Assignment in Neuronal Population Learning. <i>PLoS Computational Biology</i> , 2011, 7, e1002092.	1.5	46
27	Activity-Dependent Development of Axonal and Dendritic Delays, or, Why Synaptic Transmission Should Be Unreliable. <i>Neural Computation</i> , 2002, 14, 583-619.	1.3	44
28	Beyond spike timing: the role of nonlinear plasticity and unreliable synapses. <i>Biological Cybernetics</i> , 2002, 87, 344-355.	0.6	40
29	CODE-SPECIFIC LEARNING RULES IMPROVE ACTION SELECTION BY POPULATIONS OF SPIKING NEURONS. <i>International Journal of Neural Systems</i> , 2014, 24, 1450002.	3.2	39
30	Prospective Coding by Spiking Neurons. <i>PLoS Computational Biology</i> , 2016, 12, e1005003.	1.5	35
31	Learning Only When Necessary: Better Memories of Correlated Patterns in Networks with Bounded Synapses. <i>Neural Computation</i> , 2005, 17, 2106-2138.	1.3	33
32	The response of cortical neurons to in vivo-like input current: theory and experiment: II. Time-varying and spatially distributed inputs. <i>Biological Cybernetics</i> , 2008, 99, 303-318.	0.6	29
33	Modulating the granularity of category formation by global cortical states. <i>Frontiers in Computational Neuroscience</i> , 2008, 2, 1.	1.2	29
34	Perceptual Learning via Modification of Cortical Top-Down Signals. <i>PLoS Computational Biology</i> , 2007, 3, e165.	1.5	28
35	A Normative Theory of Forgetting: Lessons from the Fruit Fly. <i>PLoS Computational Biology</i> , 2014, 10, e1003640.	1.5	28
36	Spiking neurons with short-term synaptic plasticity form superior generative networks. <i>Scientific Reports</i> , 2018, 8, 10651.	1.6	20

#	ARTICLE	IF	CITATIONS
37	Data-driven reduction of dendritic morphologies with preserved dendro-somatic responses. <i>ELife</i> , 2021, 10, .	2.8	20
38	Eluding oblivion with smart stochastic selection of synaptic updates. <i>Chaos</i> , 2006, 16, 026112.	1.0	19
39	Stochasticity from function " Why the Bayesian brain may need no noise. <i>Neural Networks</i> , 2019, 119, 200-213.	3.3	19
40	Predictive olfactory learning in <i>Drosophila</i> . <i>Scientific Reports</i> , 2021, 11, 6795.	1.6	19
41	Strikte Konvexität f¼r Variationsprobleme auf demn-dimensionalen Torus. <i>Manuscripta Mathematica</i> , 1991, 71, 45-65.	0.3	16
42	Similar NonLeaky Integrate-and-Fire Neurons with Instantaneous Couplings Always Synchronize. <i>SIAM Journal on Applied Mathematics</i> , 2001, 61, 1143-1155.	0.8	16
43	A Gradient Learning Rule for the Tempotron. <i>Neural Computation</i> , 2009, 21, 340-352.	1.3	16
44	Learning flexible sensori-motor mappings in a complex network. <i>Biological Cybernetics</i> , 2009, 100, 147-158.	0.6	16
45	Special issue on quantitative neuron modeling. <i>Biological Cybernetics</i> , 2008, 99, 237-239.	0.6	12
46	Learning Spike-Based Population Codes by Reward and Population Feedback. <i>Neural Computation</i> , 2010, 22, 1698-1717.	1.3	12
47	Comparison between networks of conductance- and current-driven neurons: stationary spike rates and subthreshold depolarization. <i>Neurocomputing</i> , 2004, 58-60, 253-258.	3.5	11
48	Stress-induced alterations of social behavior are reversible by antagonism of steroid hormones in C57/BL6 mice. <i>Naunyn-Schmiedeberg's Archives of Pharmacology</i> , 2021, 394, 127-135.	1.4	11
49	Scale-Free Navigational Planning by Neuronal Traveling Waves. <i>PLoS ONE</i> , 2015, 10, e0127269.	1.1	10
50	Efficient Low-Pass Dendro-Somatic Coupling in the Apical Dendrite of Layer 5 Pyramidal Neurons in the Anterior Cingulate Cortex. <i>Journal of Neuroscience</i> , 2020, 40, 8799-8815.	1.7	10
51	Learning cortical representations through perturbed and adversarial dreaming. <i>ELife</i> , 2022, 11, .	2.8	10
52	Human and Machine Learning in Non-Markovian Decision Making. <i>PLoS ONE</i> , 2015, 10, e0123105.	1.1	9
53	Comparison of two models for pattern generation based on synaptic depression. <i>Neurocomputing</i> , 1999, 26-27, 551-556.	3.5	8
54	Evolving interpretable plasticity for spiking networks. <i>ELife</i> , 2021, 10, .	2.8	8

#	ARTICLE	IF	CITATIONS
55	Cortical oscillations support sampling-based computations in spiking neural networks. PLoS Computational Biology, 2022, 18, e1009753.	1.5	8
56	A model of expectation effects in inferior temporal cortex. Neurocomputing, 2001, 38-40, 1533-1540.	3.5	7
57	Strange limits of stability in host-parasitoid systems. Journal of Mathematical Biology, 1994, 32, 563-572.	0.8	6
58	Adaptive Gain Modulation in V1 Explains Contextual Modifications during Bisection Learning. PLoS Computational Biology, 2009, 5, e1000617.	1.5	6
59	Slow stochastic learning with global inhibition: a biological solution to the binary perceptron problem. Neurocomputing, 2004, 58-60, 321-326.	3.5	5
60	Spike-based Decision Learning of Nash Equilibria in Two-Player Games. PLoS Computational Biology, 2012, 8, e1002691.	1.5	5
61	Learning direction selectivity through spike-timing dependent modification of neurotransmitter release probability. Neurocomputing, 2001, 38-40, 121-127.	3.5	4
62	Hebb in perspective. Biological Cybernetics, 2002, 87, 317-318.	0.6	4
63	Gradient estimation in dendritic reinforcement learning. Journal of Mathematical Neuroscience, 2012, 2, 2.	2.4	4
64	Statistical modelling of navigational decisions based on intensity versus directionality in Drosophila larval phototaxis. Scientific Reports, 2018, 8, 11272.	1.6	4
65	Stimulus sampling as an exploration mechanism for fast reinforcement learning. Biological Cybernetics, 2009, 100, 319-330.	0.6	3
66	Hierarchical Novelty-Familiarity Representation in the Visual System by Modular Predictive Coding. PLoS ONE, 2015, 10, e0144636.	1.1	3
67	Backward reasoning the formation rules. Nature Neuroscience, 2015, 18, 1705-1706.	7.1	2
68	Firing Rate Adaptation without Losing Sensitivity to Input Fluctuations. Lecture Notes in Computer Science, 2002, , 180-185.	1.0	2
69	Natural-gradient learning for spiking neurons. ELife, 2022, 11, .	2.8	2
70	Recruitment of reticulospinal neurones and steady locomotion in lamprey. Neural Networks, 1998, 11, 1005-1015.	3.3	1
71	When NMDA Receptor Conductances Increase Inter- spike Interval Variability. Lecture Notes in Computer Science, 2002, , 235-240.	1.0	1
72	Spike-Timing-Dependent Plasticity, Learning Rules. , 2014, , 1-10.		1

#	ARTICLE	IF	CITATIONS
73	A Model of How Rapid Changes in Local Input Resistance of Shark Electrosensory Neurons May Enable Detection of Small Signals. , 1998, , 239-243.		1
74	Conductance-based dendrites perform reliability-weighted opinion pooling. , 2020, , .		1
75	Special issue on object localization. Biological Cybernetics, 2008, 98, 447-447.	0.6	0
76	Policy gradient rules for populations of spiking neurons. BMC Neuroscience, 2011, 12, .	0.8	0
77	Reinforcement learning in dendritic structures. BMC Neuroscience, 2011, 12, .	0.8	0
78	Modulation of orientation-selective neurons by motion: when additive, when multiplicative?. Frontiers in Computational Neuroscience, 2014, 8, 67.	1.2	0
79	Neurons that Remember How We Got There. Neuron, 2015, 85, 664-666.	3.8	0
80	Spatial But Not Oculomotor Information Biases Perceptual Memory: Evidence From Face Perception and Cognitive Modeling. Cognitive Science, 2017, 41, 1533-1554.	0.8	0
81	Reinforcement Learning in Cortical Networks. , 2014, , 1-9.		0
82	Reinforcement Learning in Cortical Networks. , 2014, , 1-6.		0
83	Natural gradient learning for spiking neurons. , 2020, , .		0
84	Spike-Timing Dependent Plasticity, Learning Rules. , 2022, , 3262-3270.		0
85	Reinforcement Learning in Cortical Networks. , 2022, , 3019-3026.		0