Claudia Clopath

List of Publications by Year
in descending order

#	Article	IF	Citations
1	Overcoming catastrophic forgetting in neural networks. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 3521-3526.	3.3	2,653
2	A deep learning framework for neuroscience. Nature Neuroscience, 2019, 22, 1761-1770.	7.1	563
3	Connectivity reflects coding: a model of voltage-based STDP with homeostasis. Nature Neuroscience, 2010, 13, 344-352.	7.1	517
4	The emergence of functional microcircuits in visual cortex. Nature, 2013, 496, 96-100.	13.7	414
5	Firing patterns in the adaptive exponential integrate-and-fire model. Biological Cybernetics, 2008, 99, 335-347.	0.6	250
6	A triplet spike-timingâ€“dependent plasticity model generalizes the Bienenstockâ€“Cooperâ€“Munro rule to higher-order spatiotemporal correlations. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 19383-19388.	3.3	158
7	Supervised learning in spiking neural networks with FORCE training. Nature Communications, 2017, 8, 2208.	5.8	151
8	AI for social good: unlocking the opportunity for positive impact. Nature Communications, 2020, 11, 2468.	5.8	111
9	Tag-Trigger-Consolidation: A Model of Early and Late Long-Term-Potentiation and Depression. PLoS Computational Biology, 2008, 4, e1000248.	1.5	110
10	Variance and invariance of neuronal long-term representations. Philosophical Transactions of the Royal Society B: Biological Sciences, 2017, 372, 20160161.	1.8	108
11	Interneuron-specific plasticity at parvalbumin and somatostatin inhibitory synapses onto CA1 pyramidal neurons shapes hippocampal output. Nature Communications, 2020, 11, 4395.	5.8	108
12	Activity-Dependent Downscaling of Subthreshold Synaptic Inputs during Slow-Wave-Sleep-like Activity InÂVivo. Neuron, 2018, 97, 1244-1252.e5.	3.8	95
13	Deprivation-Induced Homeostatic Spine Scaling InÂVivo Is Localized to Dendritic Branches that Have Undergone Recent Spine Loss. Neuron, 2017, 96, 871-882.e5.	3.8	91
14	Sparse synaptic connectivity is required for decorrelation and pattern separation in feedforward networks. Nature Communications, 2017, 8, 1116.	5.8	89
15	Modeling somatic and dendritic spike mediated plasticity at the single neuron and network level. Nature Communications, 2017, 8, 706.	5.8	87
16	Inhibitory stabilization and cortical computation. Nature Reviews Neuroscience, 2021, 22, 21-37.	4.9	80
17	Local inhibitory plasticity tunes macroscopic brain dynamics and allows the emergence of functional brain networks. NeuroImage, 2016, 124, 85-95.	2.1	74
18	Sequential neuromodulation of Hebbian plasticity offers mechanism for effective reward-based navigation. ELife, 2017, 6, .	2.8	74

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19	Voltage and spike timing interact in STDP - a unified model. Frontiers in Synaptic Neuroscience, 2010, 2, 25.	1.3	72
20	Local circuit amplification of spatial selectivity in the hippocampus. Nature, 2022, 601, 105-109.	13.7	60
21	A Cerebellar Learning Model of Vestibulo-Ocular Reflex Adaptation in Wild-Type and Mutant Mice. Journal of Neuroscience, 2014, 34, 7203-7215.	1.7	59
22	Predicting neuronal activity with simple models of the threshold type: Adaptive Exponential Integrate-and-Fire model with two compartments. Neurocomputing, 2007, 70, 1668-1673.	3.5	53
23	A diversity of interneurons and Hebbian plasticity facilitate rapid compressible learning in the hippocampus. Nature Neuroscience, 2019, 22, 1168-1181.	7.1	52
24	Gap junction plasticity as a mechanism to regulate network-wide oscillations. PLoS Computational Biology, 2018, 14, e1006025.	1.5	50
25	Oscillations emerging from noise-driven steady state in networks with electrical synapses and subthreshold resonance. Nature Communications, 2014, 5, 5512.	5.8	46
26	Audio-visual experience strengthens multisensory assemblies in adult mouse visual cortex. Nature Communications, 2019, 10, 5684.	5.8	46
27	Synaptic consolidation: an approach to long-term learning. Cognitive Neurodynamics, 2012, 6, 251-257.	2.3	42
28	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. PLoS Computational Biology, 2020, 16, e1007606.	1.5	42
29	Cerebellar learning using perturbations. ELife, 2018, 7, .	2.8	41
30	Storage of Correlated Patterns in Standard and Bistable Purkinje Cell Models. PLoS Computational Biology, 2012, 8, e1002448.	1.5	40
31	Inhibitory microcircuits for top-down plasticity of sensory representations. Nature Communications, 2019, 10, 5055.	5.8	39
32	Unifying Long-Term Plasticity Rules for Excitatory Synapses by Modeling Dendrites of Cortical Pyramidal Neurons. Cell Reports, 2019, 29, 4295-4307.e6.	2.9	38
33	Emergence of Functional Specificity in Balanced Networks with Synaptic Plasticity. PLoS Computational Biology, 2015, 11, e1004307.	1.5	36
34	Acetylcholine-modulated plasticity in reward-driven navigation: a computational study. Scientific Reports, 2018, 8, 9486.	1.6	34
35	Modelling plasticity in dendrites: from single cells to networks. Current Opinion in Neurobiology, 2017, 46, 136-141.	2.0	32
36	Visualizing a joint future of neuroscience and neuromorphic engineering. Neuron, 2021, 109, 571-575.	3.8	31

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37	Neural manifold under plasticity in a goal driven learning behaviour. PLoS Computational Biology, 2021, 17, e1008621.	1.5	30
38	Learning and attention increase visual response selectivity through distinct mechanisms. Neuron, 2022, 110, 686-697.e6.	3.8	28
39	ON-OFF receptive fields in auditory cortex diverge during development and contribute to directional sweep selectivity. Nature Communications, 2018, 9, 2084.	5.8	27
40	Theory of neuronal perturbome in cortical networks. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 26966-26976.	3.3	27
41	Patterned perturbation of inhibition can reveal the dynamical structure of neural processing. ELife, 2020, 9, .	2.8	27
42	Population coupling predicts the plasticity of stimulus responses in cortical circuits. ELife, 2020, 9, .	2.8	26
43	Optimal Properties of Analog Perceptrons with Excitatory Weights. PLoS Computational Biology, 2013, 9, e1002919.	1.5	25
44	The Role of Neuromodulators in Cortical Plasticity. A Computational Perspective. Frontiers in Synaptic Neuroscience, 2016, 8, 38.	1.3	24
45	Prediction-error neurons in circuits with multiple neuron types: Formation, refinement, and functional implications. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2115699119.	3.3	23
46	Excitatory-inhibitory balance modulates the formation and dynamics of neuronal assemblies in cortical networks. Science Advances, 2021, 7, eabg8411.	4.7	21
47	Modeled changes of cerebellar activity in mutant mice are predictive of their learning impairments. Scientific Reports, 2016, 6, 36131.	1.6	20
48	Size-Dependent Axonal Bouton Dynamics following Visual Deprivation InÂVivo. Cell Reports, 2018, 22, 576-584.	2.9	20
49	Detection of axonal synapses in 3D two-photon images. PLoS ONE, 2017, 12, e0183309.	1.1	17
50	Coordinated hippocampal-thalamic-cortical communication crucial for engram dynamics underneath systems consolidation. Nature Communications, 2022, 13, 840.	5.8	15
51	The interplay between somatic and dendritic inhibition promotes the emergence and stabilization of place fields. PLoS Computational Biology, 2020, 16, e1007955.	1.5	14
52	From homeostasis to behavior: Balanced activity in an exploration of embodied dynamic environmental-neural interaction. PLoS Computational Biology, 2017, 13, e1005721.	1.5	14
53	Processing of Feature Selectivity in Cortical Networks with Specific Connectivity. PLoS ONE, 2015, 10, e0127547.	1.1	12
54	Dopamine and serotonin interplay for valence-based spatial learning. Cell Reports, 2022, 39, 110645.	2.9	11

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55	Chaos in homeostatically regulated neural systems. Chaos, 2018, 28, 083104.	1.0	9
56	Emergent spatial synaptic structure from diffusive plasticity. European Journal of Neuroscience, 2017, 45, 1057-1067.	1.2	7
57	Synaptic plasticity onto inhibitory neurons as a mechanism for ocular dominance plasticity. PLoS Computational Biology, 2019, 15, e1006834.	1.5	7
58	Learning compositional sequences with multiple time scales through a hierarchical network of spiking neurons. PLoS Computational Biology, 2021, 17, e1008866.	1.5	7
59	Network-centered homeostasis through inhibition maintains hippocampal spatial map and cortical circuit function. Cell Reports, 2021, 36, 109577.	2.9	7
60	Neuronal activity in sensory cortex predicts the specificity of learning in mice. Nature Communications, 2022, 13, 1167.	5.8	6
61	Reply to HuszÃ¡r: The elastic weight consolidation penalty is empirically valid. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E2498.	3.3	5
62	Memories in a network with excitatory and inhibitory plasticity are encoded in the spiking irregularity. PLoS Computational Biology, 2021, 17, e1009593.	1.5	5
63	Free recall scaling laws and short-term memory effects in a latching attractor network. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	4
64	Separable actions of acetylcholine and noradrenaline on neuronal ensemble formation in hippocampal CA3 circuits. PLoS Computational Biology, 2021, 17, e1009435.	1.5	3
65	The functional role of sequentially neuromodulated synaptic plasticity in behavioural learning. PLoS Computational Biology, 2021, 17, e1009017.	1.5	2
66	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
67	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
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71	Learning spatiotemporal signals using a recurrent spiking network that discretizes time. , 2020, 16, e1007606.		0
72	Title is missing!. , 2020, 16, e1007955.		0

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73	Title is missing!. , 2020, 16, e1007955.		0
74	Title is missing!. , 2020, 16, e1007955.		0
75	Title is missing!. , 2020, 16, e1007955.		0
76	Title is missing!. , 2020, 16, e1007955.		0