Timothee Masquelier

List of Publications by Year
in descending order

53 papers	4,273 citations	279701 23 h-index	276775 41 g-index
57 all docs	57 docs citations	57 times ranked	3269 citing authors

#	Article	IF	Citations
1	Deep learning in spiking neural networks. Neural Networks, 2019, 111, 47-63.	3.3	629
2	STDP-based spiking deep convolutional neural networks for object recognition. Neural Networks, 2018, 99, 56-67.	3.3	471
3	Unsupervised Learning of Visual Features through Spike Timing Dependent Plasticity. PLoS Computational Biology, 2007, 3, e31.	1.5	409
4	STDP and STDP variations with memristors for spiking neuromorphic learning systems. Frontiers in Neuroscience, 2013, 7, 2.	1.4	368
5	On Spike-Timing-Dependent-Plasticity, Memristive Devices, and Building a Self-Learning Visual Cortex. Frontiers in Neuroscience, 2011, 5, 26.	1.4	364
6	Competitive STDP-Based Spike Pattern Learning. Neural Computation, 2009, 21, 1259-1276.	1.3	248
7	Spike Timing Dependent Plasticity Finds the Start of Repeating Patterns in Continuous Spike Trains. PLoS ONE, 2008, 3, e1377.	1.1	224
8	Oscillations, Phase-of-Firing Coding, and Spike Timing-Dependent Plasticity: An Efficient Learning Scheme. Journal of Neuroscience, 2009, 29, 13484-13493.	1.7	153
9	Incorporating Learnable Membrane Time Constant to Enhance Learning of Spiking Neural Networks. , 2021, , .		130
10	Deep Networks Can Resemble Human Feed-forward Vision in Invariant Object Recognition. Scientific Reports, 2016, 6, 32672.	1.6	122
11	Temporal Backpropagation for Spiking Neural Networks with One Spike per Neuron. International Journal of Neural Systems, 2020, 30, 2050027.	3.2	120
12	First-Spike-Based Visual Categorization Using Reward-Modulated STDP. IEEE Transactions on Neural Networks and Learning Systems, 2018, 29, 6178-6190.	7.2	113
13	Bio-inspired digit recognition using reward-modulated spike-timing-dependent plasticity in deep convolutional networks. Pattern Recognition, 2019, 94, 87-95.	5.1	99
14	Bio-inspired unsupervised learning of visual features leads to robust invariant object recognition. Neurocomputing, 2016, 205, 382-392.	3.5	96
15	SpykeTorch: Efficient Simulation of Convolutional Spiking Neural Networks With at Most One Spike per Neuron. Frontiers in Neuroscience, 2019, 13, 625.	1.4	74
16	Neural variability, or lack thereof. Frontiers in Computational Neuroscience, 2013, 7, 7.	1.2	61
17	STiDi-BP: Spike time displacement based error backpropagation in multilayer spiking neural networks. Neurocomputing, 2021, 427, 131-140.	3.5	44
18	The Role of Rhythmic Neural Synchronization in Rest and Task Conditions. Frontiers in Human Neuroscience, 2011, 5, 4.	1.0	39

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19	Relative spike time coding and STDP-based orientation selectivity in the early visual system in natural continuous and saccadic vision: a computational model. Journal of Computational Neuroscience, 2012, 32, 425-441.	0.6	36
20	Rank Order Coding: a Retinal Information Decoding Strategy Revealed by Large-Scale Multielectrode Array Retinal Recordings. ENeuro, 2016, 3, ENEURO.0134-15.2016.	0.9	36
21	Network Bursting Dynamics in Excitatory Cortical Neuron Cultures Results from the Combination of Different Adaptive Mechanism. PLoS ONE, 2013, 8, e75824.	1.1	36
22	STDP Allows Fast Rate-Modulated Coding with Poisson-Like Spike Trains. PLoS Computational Biology, 2011, 7, e1002231.	1.5	33
23	Learning to recognize objects using waves of spikes and Spike Timing-Dependent Plasticity. , 2010, , .		31
24	Visualizing a joint future of neuroscience and neuromorphic engineering. Neuron, 2021, 109, 571-575.	3.8	31
25	BS4NN: Binarized Spiking Neural Networks with Temporal Coding and Learning. Neural Processing Letters, 2022, 54, 1255-1273.	2.0	28
26	Humans and Deep Networks Largely Agree on Which Kinds of Variation Make Object Recognition Harder. Frontiers in Computational Neuroscience, 2016, 10, 92.	1.2	23
27	Acquisition of visual features through probabilistic spike-timing-dependent plasticity. , 2016, , .		23
28	Hardware implementation of convolutional STDP for on-line visual feature learning. , 2017, , .		22
29	Microsaccades enable efficient synchrony-based coding in the retina: a simulation study. Scientific Reports, 2016, 6, 24086.	1.6	21
30	Emergence of Binocular Disparity Selectivity through Hebbian Learning. Journal of Neuroscience, 2018, 38, 9563-9578.	1.7	21
31	Representation learning using event-based STDP. Neural Networks, 2018, 105, 294-303.	3.3	21
32	Low-Activity Supervised Convolutional Spiking Neural Networks Applied to Speech Commands Recognition. , 2021, , .		19
33	STDP Allows Close-to-Optimal Spatiotemporal Spike Pattern Detection by Single Coincidence Detector Neurons. Neuroscience, 2018, 389, 133-140.	1.1	18
34	Optimal Localist and Distributed Coding of Spatiotemporal Spike Patterns Through STDP and Coincidence Detection. Frontiers in Computational Neuroscience, 2018, 12, 74.	1.2	16
35	Epileptic Seizure Detection Using a Neuromorphic-Compatible Deep Spiking Neural Network. Lecture Notes in Computer Science, 2020, , 389-394.	1.0	13
36	Object Categorization in Finer Levels Relies More on Higher Spatial Frequencies and Takes Longer. Frontiers in Psychology, 2017, 8, 1261.	1.1	12

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37	The Timing of Vision â€“ How Neural Processing Links to Different Temporal Dynamics. Frontiers in Psychology, 2011, 2, 151.	1.1	10
38	Event-Based Trajectory Prediction Using Spiking Neural Networks. Frontiers in Computational Neuroscience, 2021, 15, 658764.	1.2	8
39	Spiking Neural Networks Trained via Proxy. IEEE Access, 2022, 10, 70769-70778.	2.6	8
40	Encrypted internet traffic classification using a supervised spiking neural network. Neurocomputing, 2022, 503, 272-282.	3.5	7
41	Convis: A Toolbox to Fit and Simulate Filter-Based Models of Early Visual Processing. Frontiers in Neuroinformatics, 2018, 12, 9.	1.3	3
42	Fast Threshold Optimization for Multi-Label Audio Tagging Using Surrogate Gradient Learning. , 2021, , .		3
43	Sub-Optimality of the Early Visual System Explained Through Biologically Plausible Plasticity. Frontiers in Neuroscience, 2021, 15, 727448.	1.4	3
44	Oscillations can reconcile slowly changing stimuli with short neuronal integration and STDP timescales. Network: Computation in Neural Systems, 2014, 25, 85-96.	2.2	2
45	Live demonstration: Hardware implementation of convolutional STDP for on-line visual feature learning. , 2017, , .		2
46	Spike-Timing-Dependent-Plasticity withÂMemristors. , 2019, , 429-467.		2
47	Safety Enhancement by PDA: Two Novel Examples. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2001, 34, 259-263.	0.4	1
48	Visual stimulation quenches global alpha range activity in awake primate V4: a case study. Neurophotonics, 2017, 4, 031222.	1.7	1
49	Unsupervised learning of repeating patterns using a novel STDP based algorithm. Journal of Vision, 2017, 17, 1079.	0.1	1
50	Pattern learning using spike-timing-dependent plasticity: a theoretical approach. BMC Neuroscience, 2009, 10, .	0.8	0
51	Optimal spike pattern v.s. noise separation by neurons equipped with STDP. BMC Neuroscience, 2013, 14, .	0.8	0
52	Rapid neural coding in the mouse retina with the first wave of spikes. BMC Neuroscience, 2014, 15, .	0.8	0
53	Microsaccades enable efficient synchrony-based visual feature learning and detection. BMC Neuroscience, 2014, 15, .	0.8	0