Karlheinz Meier

List of Publications by Year
in descending order

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40	1,755	623188 14	676716 22
papers	citations	h-index	g-index

40	40	40	1322
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	A wafer-scale neuromorphic hardware system for large-scale neural modeling. , 2010, , .		449
2	Wafer-scale integration of analog neural networks. , 2008, , .		175
3	Six Networks on a Universal Neuromorphic Computing Substrate. Frontiers in Neuroscience, 2013, 7, 11.	1.4	131
4	Neuromorphic hardware in the loop: Training a deep spiking network on the BrainScaleS wafer-scale system. , 2017, , .		99
5	Demonstrating Hybrid Learning in a Flexible Neuromorphic Hardware System. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 128-142.	2.7	87
6	Demonstrating Advantages of Neuromorphic Computation: A Pilot Study. Frontiers in Neuroscience, 2019, 13, 260.	1.4	83
7	Control of criticality and computation in spiking neuromorphic networks with plasticity. Nature Communications, 2020, 11, 2853.	5.8	70
8	An Accelerated LIF Neuronal Network Array for a Large-Scale Mixed-Signal Neuromorphic Architecture. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 4299-4312.	3.5	59
9	Modeling Synaptic Plasticity within Networks of Highly Accelerated I&F Neurons. , 2007, , .		56
10	An accelerated analog neuromorphic hardware system emulating NMDA- and calcium-based non-linear dendrites. , 2017, , .		50
11	Stochastic inference with spiking neurons in the high-conductance state. Physical Review E, 2016, 94, 042312.	0.8	46
12	Characterization and Compensation of Network-Level Anomalies in Mixed-Signal Neuromorphic Modeling Platforms. PLoS ONE, 2014, 9, e108590.	1.1	42
13	Live demonstration: A scaled-down version of the BrainScaleS wafer-scale neuromorphic system. , 2012, , .		41
14	Realizing biological spiking network models in a configurable wafer-scale hardware system. , 2008, , .		40
15	A Mixed-Signal Structured AdEx Neuron for Accelerated Neuromorphic Cores. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 1027-1037.	2.7	38
16	Neuromorphic Hardware Learns to Learn. Frontiers in Neuroscience, 2019, 13, 483.	1.4	35
17	A mixed-signal universal neuromorphic computing system. , 2015, , .		24
18	Accelerated Physical Emulation of Bayesian Inference in Spiking Neural Networks. Frontiers in Neuroscience, 2019, 13, 1201.	1.4	22

#	Article	IF	Citations
19	Spiking neurons with short-term synaptic plasticity form superior generative networks. Scientific Reports, 2018, 8, 10651.	1.6	20
20	A highly tunable 65-nm CMOS LIF neuron for a large scale neuromorphic system. , 2016, , .		19
21	Stochasticity from function â€" Why the Bayesian brain may need no noise. Neural Networks, 2019, 119, 200-213.	3.3	19
22	A Mixed-Mode Analog Neural Network Using Current-Steering Synapses. Analog Integrated Circuits and Signal Processing, 2004, 38, 233-244.	0.9	17
23	Probabilistic inference in discrete spaces can be implemented into networks of LIF neurons. Frontiers in Computational Neuroscience, 2015, 9, 13.	1.2	17
24	An analog dynamic memory array for neuromorphic hardware. , 2013, , .		16
25	Effect of Heterogeneity on Decorrelation Mechanisms in Spiking Neural Networks: A Neuromorphic-Hardware Study. Physical Review X, 2016, 6, .	2.8	15
26	Special report : Can we copy the brain? - The brain as computer. IEEE Spectrum, 2017, 54, 28-33.	0.5	13
27	Deterministic networks for probabilistic computing. Scientific Reports, 2019, 9, 18303.	1.6	10
28	Structural plasticity on an accelerated analog neuromorphic hardware system. Neural Networks, 2021, 133, 11-20.	3.3	10
29	Simulator-like exploration of cortical network architectures with a mixed-signal VLSI system. , 2010, , .		8
30	Neuromorphic learning towards nano second precision. , 2013, , .		8
31	Cortical oscillations support sampling-based computations in spiking neural networks. PLoS Computational Biology, 2022, 18, e1009753.	1.5	8
32	Criticality or Supersymmetry Breaking?. Symmetry, 2020, 12, 805.	1.1	7
33	The high-conductance state enables neural sampling in networks of LIF neurons. BMC Neuroscience, 2015, 16, .	0.8	5
34	From LIF to AdEx neuron models: Accelerated analog 65 nm CMOS implementation. , 2017, , .		5
35	High-conductance states on a neuromorphic hardware system. , 2009, , .		4
36	Full wafer redistribution and wafer embedding as key technologies for a multi-scale neuromorphic hardware cluster. , 2017, , .		4

#	Article	IF	Citations
37	A Basic Phase Diagram of Neuronal Dynamics. Neural Computation, 2018, 30, 2418-2438.	1.3	2
38	Robustness from structure: Inference with hierarchical spiking networks on analog neuromorphic hardware. , 2017, , .		1
39	Live demonstration: Simulator-like exploration of cortical network architectures with a mixed-signal VLSI system. , 2010, , .		0
40	A highly tunable 65-nm CMOS LIF neuron for a large scale neuromorphic system. , 2016, , .		0