Bipin Rajendran

List of Publications by Year
in descending order

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68	5,053	304743	377865
papers	citations	22 h-index	34 g-index

68	68	68	4793
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Phase Change Memory. Proceedings of the IEEE, 2010, 98, 2201-2227.	21.3	1,420
2	Phase change memory technology. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2010, 28, 223-262.	1.2	795
3	Neuromorphic computing with multi-memristive synapses. Nature Communications, 2018, 9, 2514.	12.8	566
4	Accurate deep neural network inference using computational phase-change memory. Nature Communications, 2020, 11, 2473.	12.8	263
5	A 45nm CMOS neuromorphic chip with a scalable architecture for learning in networks of spiking neurons. , 2011, , .		190
6	Memristorsâ€"From Inâ€Memory Computing, Deep Learning Acceleration, and Spiking Neural Networks to the Future of Neuromorphic and Bioâ€Inspired Computing. Advanced Intelligent Systems, 2020, 2, 2000085.	6.1	143
7	Specifications of Nanoscale Devices and Circuits for Neuromorphic Computational Systems. IEEE Transactions on Electron Devices, 2013, 60, 246-253.	3.0	139
8	Nanoscale electronic synapses using phase change devices. ACM Journal on Emerging Technologies in Computing Systems, 2013, 9, 1-20.	2.3	123
9	Silicon nanowires for sequence-specific DNA sensing: device fabrication and simulation. Applied Physics A: Materials Science and Processing, 2005, 80, 1257-1263.	2.3	117
10	Efficient scrub mechanisms for error-prone emerging memories. , 2012, , .		101
11	Spiking neural networks for handwritten digit recognitionâ€"Supervised learning and network optimization. Neural Networks, 2018, 103, 118-127.	5.9	100
12	Neuromorphic Computing Based on Emerging Memory Technologies. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2016, 6, 198-211.	3.6	96
13	A phase-change memory model for neuromorphic computing. Journal of Applied Physics, 2018, 124, .	2.5	96
14	A 250 mV Cu/SiO₂/W Memristor with Half-Integer Quantum Conductance States. Nano Letters, 2016, 16, 1602-1608.	9.1	92
15	Low-Power Neuromorphic Hardware for Signal Processing Applications: A Review of Architectural and System-Level Design Approaches. IEEE Signal Processing Magazine, 2019, 36, 97-110.	5.6	88
16	Novel synaptic memory device for neuromorphic computing. Scientific Reports, 2014, 4, 5333.	3.3	85
17	Mixed-Precision Deep Learning Based on Computational Memory. Frontiers in Neuroscience, 2020, 14, 406.	2.8	61
18	Arbitrary Spike Time Dependent Plasticity (STDP) in Memristor by Analog Waveform Engineering. IEEE Electron Device Letters, 2017, 38, 740-743.	3.9	57

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19	Low Thermal Budget Processing for Sequential 3-D IC Fabrication. IEEE Transactions on Electron Devices, 2007, 54, 707-714.	3.0	56
20	Phase Change Memory: From Devices to Systems. Synthesis Lectures on Computer Architecture, 2011, 6, 1-134.	1.3	52
21	Experimental Demonstration of Supervised Learning in Spiking Neural Networks with Phase-Change Memory Synapses. Scientific Reports, 2020, 10, 8080.	3.3	48
22	Integrated on-chip inductors with electroplated magnetic yokes (invited). Journal of Applied Physics, 2012, 111, .	2.5	43
23	NormAD - Normalized Approximate Descent based supervised learning rule for spiking neurons. , 2015, , .		33
24	Building Brain-Inspired Computing Systems: Examining the Role of Nanoscale Devices. IEEE Nanotechnology Magazine, 2018, 12, 19-35.	1.3	30
25	Reducing read latency of phase change memory via early read and Turbo Read. , 2015, , .		26
26	Demonstration of CAM and TCAM Using Phase Change Devices. , 2011, , .		23
27	Dynamic Resistance—A Metric for Variability Characterization of Phase-Change Memory. IEEE Electron Device Letters, 2009, 30, 126-129.	3.9	22
28	Training multi-layer spiking neural networks using NormAD based spatio-temporal error backpropagation. Neurocomputing, 2020, 380, 67-77.	5.9	15
29	Stochastic learning in deep neural networks based on nanoscale PCMO device characteristics. Neurocomputing, 2018, 321, 227-236.	5.9	12
30	On Pairing of Bipolar RRAM Memory With NPN Selector Based on Set/Reset Array Power Considerations. IEEE Nanotechnology Magazine, 2013, 12, 1178-1184.	2.0	11
31	Bio-mimetic synaptic plasticity and learning in a sub-500ÂmV Cu/SiO2/W memristor. Microelectronic Engineering, 2020, 226, 111290.	2.4	11
32	Nano-graphoepitaxy of semiconductors for 3D integration. Microelectronic Engineering, 2007, 84, 891-894.	2.4	10
33	C. elegans chemotaxis inspired neuromorphic circuit for contour tracking and obstacle avoidance. , 2015, , .		10
34	Pulsed laser annealing: A scalable and practical technology for monolithic 3D IC. , 2013, , .		9
35	Spiking neural networks â€" Algorithms, hardware implementations and applications. , 2017, , .		9
36	Neuromorphic Hardware Accelerator for SNN Inference based on STT-RAM Crossbar Arrays. , 2019, , .		9

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37	Lamellar crystallization of silicon for 3-dimensional integration. Microelectronic Engineering, 2007, 84, 1186-1189.	2.4	8
38	Driving Device Comparison for Phase-Change Memory. IEEE Transactions on Electron Devices, 2011, 58, 664-671.	3.0	8
39	Analog memristive time dependent learning using discrete nanoscale RRAM devices. , 2014, , .		8
40	Mimicking the worm — An adaptive spiking neural circuit for contour tracking inspired by C. Elegans thermotaxis. , 2014, , .		8
41	Programming Current Reduction via Enhanced Asymmetry-Induced Thermoelectric Effects in Vertical Nanopillar Phase-Change Memory Cells. IEEE Transactions on Electron Devices, 2015, 62, 4015-4021.	3.0	7
42	Role of resistive memory devices in brain-inspired computing. , 2020, , 3-16.		7
43	Learning First-to-Spike Policies for Neuromorphic Control Using Policy Gradients. , 2019, , .		6
44	Learning and real-time classification of hand-written digits with spiking neural networks. , 2017, , .		5
45	Phase change memory â€" opportunities and challenges. , 2007, , .		4
46	Optimized Scaling of Diode Array Design for 32nm Node Phase Change Memory. International Power Modulator Symposium and High-Voltage Workshop, 2008, , .	0.0	3
47	Guided Problem Solving and Group Programming: A Technology-Enhanced Teaching-Learning Strategy for Engineering Problem Solving. , 2014, , .		3
48	Delayed Guidance: A Teaching-Learning Strategy to Develop Ill-Structured Problem Solving Skills in Engineering. , 2015, , .		3
49	An On-Chip Learning Accelerator for Spiking Neural Networks using STT-RAM Crossbar Arrays. , 2020, , .		3
50	Increasing reconfigurability with memristive interconnects. , 2015, , .		2
51	Verilog-A compact model for a novel Cu/SiO<inf>2</inf>/W quantum memristor. , 2016, , .		2
52	Stochastic deep learning in memristive networks. , 2017, , .		2
53	Well-Posed Verilog-A Compact Model for Phase Change Memory. , 2018, , .		2
54	Scalable Digital CMOS Architecture for Spike Based Supervised Learning. Communications in Computer and Information Science, 2015, , 149-158.	0.5	2

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55	Embedded tutorial - Can silicon machines match the efficiency of the human brain?. , 2013, , .		1
56	A circuit model for a Si-based biomimetic synaptic time-keeping device. , 2015, , .		1
57	Composer classification based on temporal coding in adaptive spiking neural networks. , 2015, , .		1
58	Live demonstration: Spiking neural circuit based navigation inspired by C. elegans thermotaxis. , 2015, , .		1
59	Physics-based switching model for Cu/SiO<inf>2</inf>/W quantum memristor. , 2016, , .		1
60	Acceleration of Convolutional Networks Using Nanoscale Memristive Devices. Communications in Computer and Information Science, 2018, , 240-251.	0.5	1
61	Modeling and Simulation of 1/f Noise During Threshold Switching for Phase Change Memory. Lecture Notes in Electrical Engineering, 2018, , 77-83.	0.4	1
62	Building Next-Generation AI systems: Co-Optimization of Algorithms, Architectures, and Nanoscale Memristive Devices. , 2019, , .		1
63	Memristive devices for spiking neural networks. , 2020, , 399-405.		1
64	Arithmetic computing via rate coding in neural circuits with spike-triggered adaptive synapses. , 2015, , .		0
65	Live Demonstration: Image Classification Using Bio-inspired Spiking Neural Networks. , 2018, , .		0
66	Memristive devices as computational memory. , 2020, , 167-174.		0
67	Hybrid In-Memory Computing Architecture for the Training of Deep Neural Networks. , 2021, , .		0
68	Novel Biomimetic Si Devices for Neuromorphic Computing Architecture. Cognitive Systems Monographs, 2017, , 151-174.	0.1	0