Abhronil Sengupta

List of Publications by Year
in descending order

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55 papers	2,743 citations	279487 23 h-index	288905 40 g-index
55 all docs	55 docs citations	55 times ranked	2076 citing authors

#	Article	IF	Citations
1	Going Deeper in Spiking Neural Networks: VGG and Residual Architectures. Frontiers in Neuroscience, 2019, 13, 95.	1.4	573
2	Magnetic Tunnel Junction Based Long-Term Short-Term Stochastic Synapse for a Spiking Neural Network with On-Chip STDP Learning. Scientific Reports, 2016, 6, 29545.	1.6	162
3	Spin-Transfer Torque Devices for Logic and Memory: Prospects and Perspectives. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2016, 35, 1-22.	1.9	153
4	Proposal for an All-Spin Artificial Neural Network: Emulating Neural and Synaptic Functionalities Through Domain Wall Motion in Ferromagnets. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 1152-1160.	2.7	141
5	Toward Fast Neural Computing using All-Photonic Phase Change Spiking Neurons. Scientific Reports, 2018, 8, 12980.	1.6	132
6	Magnetic Tunnel Junction Mimics Stochastic Cortical Spiking Neurons. Scientific Reports, 2016, 6, 30039.	1.6	125
7	Encoding neural and synaptic functionalities in electron spin: A pathway to efficient neuromorphic computing. Applied Physics Reviews, 2017, 4, 041105.	5.5	101
8	Reconfigurable perovskite nickelate electronics for artificial intelligence. Science, 2022, 375, 533-539.	6.0	93
9	Probabilistic Deep Spiking Neural Systems Enabled by Magnetic Tunnel Junction. IEEE Transactions on Electron Devices, 2016, 63, 2963-2970.	1.6	88
10	An All-Memristor Deep Spiking Neural Computing System: A Step Toward Realizing the Low-Power Stochastic Brain. IEEE Transactions on Emerging Topics in Computational Intelligence, 2018, 2, 345-358.	3.4	81
11	Hybrid Spintronic-CMOS Spiking Neural Network with On-Chip Learning: Devices, Circuits, and Systems. Physical Review Applied, 2016, 6, .	1.5	76
12	Spin-orbit torque induced spike-timing dependent plasticity. Applied Physics Letters, 2015, 106, .	1.5	74
13	Spin orbit torque based electronic neuron. Applied Physics Letters, 2015, 106, .	1.5	71
14	Exploring the Connection Between Binary and Spiking Neural Networks. Frontiers in Neuroscience, 2020, 14, 535.	1.4	61
15	RESPARC. , 2017, , .		60
16	A Vision for All-Spin Neural Networks: A Device to System Perspective. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 2267-2277.	3.5	58
17	RxNN: A Framework for Evaluating Deep Neural Networks on Resistive Crossbars. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2021, 40, 326-338.	1.9	54
18	Stochastic Spiking Neural Networks Enabled by Magnetic Tunnel Junctions: From Nontelegraphic to Telegraphic Switching Regimes. Physical Review Applied, 2017, 8, .	1.5	49

#	Article	IF	Citations
19	Neuromorphic computing enabled by physics of electron spins: Prospects and perspectives. Applied Physics Express, 2018, 11, 030101.	1.1	44
20	Short-Term Plasticity and Long-Term Potentiation in Magnetic Tunnel Junctions: Towards Volatile Synapses. Physical Review Applied, 2016, 5, .	1.5	40
21	Magnetic Skyrmion as a Spintronic Deep Learning Spiking Neuron Processor. IEEE Transactions on Magnetics, 2018, 54, 1-7.	1.2	38
22	Magnetic tunnel junction enabled all-spin stochastic spiking neural network. , 2017, , .		34
23	Invited - Cross-layer approximations for neuromorphic computing: from devices to circuits and systems. , 2016, , .		30
24	Stochastic Spin-Orbit Torque Devices as Elements for Bayesian Inference. Scientific Reports, 2017, 7, 14101.	1.6	29
25	TraNNsformer: Neural network transformation for memristive crossbar based neuromorphic system design. , 2017, , .		28
26	On the energy benefits of spiking deep neural networks: A case study. , 2016, , .		27
27	Perspective: Stochastic magnetic devices for cognitive computing. Journal of Applied Physics, 2018, 123, 210901.	1.1	27
28	Spin-Transfer Torque Magnetic neuron for low power neuromorphic computing. , 2015, , .		24
29	Magnetic Tunnel Junction as an On-Chip Temperature Sensor. Scientific Reports, 2017, 7, 11764.	1.6	24
30	NEBULA: A Neuromorphic Spin-Based Ultra-Low Power Architecture for SNNs and ANNs. , 2020, , .		23
31	Exploiting Oxide Based Resistive RAM Variability for Bayesian Neural Network Hardware Design. IEEE Nanotechnology Magazine, 2020, 19, 328-331.	1.1	22
32	All-Spin Bayesian Neural Networks. IEEE Transactions on Electron Devices, 2020, 67, 1340-1347.	1.6	22
33	Spin and Charge Interconversion in Dirac-Semimetal Thin Films. Physical Review Applied, 2021, 16, .	1.5	20
34	Spintronic devices for ultra-low power neuromorphic computation (Special session paper). , 2016, , .		14
35	Stochastic Inference and Learning Enabled by Magnetic Tunnel Junctions. , 2018, , .		14
36	Performance analysis and benchmarking of all-spin spiking neural networks (Special session paper). , 2017, , .		12

#	Article	IF	Citations
37	Intrinsic synaptic plasticity of ferroelectric field effect transistors for online learning. Applied Physics Letters, 2021, 119, .	1.5	12
38	Toward a spintronic deep learning spiking neural processor. , 2016, , .		11
39	Cross-Layer Design Exploration for Energy-Quality Tradeoffs in Spiking and Non-Spiking Deep Artificial Neural Networks. IEEE Transactions on Multi-Scale Computing Systems, 2018, 4, 613-623.	2.5	11
40	On the Self-Repair Role of Astrocytes in STDP Enabled Unsupervised SNNs. Frontiers in Neuroscience, 2020, 14, 603796.	1.4	10
41	Power System Disturbance Classification With Online Event-Driven Neuromorphic Computing. IEEE Transactions on Smart Grid, 2021, 12, 2343-2354.	6.2	9
42	Spin-Torque Sensors for Energy Efficient High-Speed Long Interconnects. IEEE Transactions on Electron Devices, 2016, 63, 800-808.	1.6	8
43	Revisiting Stochastic Computing in the Era of Nanoscale Nonvolatile Technologies. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2020, 28, 2481-2494.	2.1	8
44	Stochastic magnetoelectric neuron for temporal information encoding. Applied Physics Letters, 2020, 116, 043701.	1.5	8
45	TraNNsformer: Clustered Pruning on Crossbar-Based Architectures for Energy-Efficient Neural Networks. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2020, 39, 2361-2374.	1.9	7
46	Neuromorphic Computing Across the Stack: Devices, Circuits and Architectures. , 2018, , .		6
47	Gesture-SNN: Co-optimizing accuracy, latency and energy of SNNs for neuromorphic vision sensors. , 2021, , .		6
48	Energy-Efficient Object Detection Using Semantic Decomposition. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2017, 25, 2673-2677.	2.1	5
49	Switching Dynamics in Vanadium Dioxide-Based Stochastic Thermal Neurons. IEEE Transactions on Electron Devices, 2022, 69, 3135-3141.	1.6	5
50	Efficient Neuromorphic Systems and Emerging Technologies: Prospects and Perspectives. , 2017, , 261-274.		3
51	Biased Random Walk Using Stochastic Switching of Nanomagnets: Application to SAT Solver. IEEE Transactions on Electron Devices, 2018, 65, 1617-1624.	1.6	3
52	Emulation of Astrocyte Induced Neural Phase Synchrony in Spin-Orbit Torque Oscillator Neurons. Frontiers in Neuroscience, 2021, 15, 699632.	1.4	2
53	Neuroevolution Guided Hybrid Spiking Neural Network Training. Frontiers in Neuroscience, 2022, 16, 838523.	1.4	2
54	Synthesis and electrical behavior of VO2 thin films grown on SrRuO3 electrode layers. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2022, 40, .	0.9	2

#	Article	IF	Citations
55	Prospects of efficient neural computing with arrays of magneto-metallic neurons and synapses. , 2016, , .		1