J Joshua Yang

List of Publications by Year
in descending order

103 papers	28,872 citations	15466 65 h-index	45213 90 g-index
105 all docs	105 docs citations	105 times ranked	12857 citing authors

#	Article	IF	Citations
1	Memristive devices for computing. Nature Nanotechnology, 2013, 8, 13-24.	15.6	3,019
2	Memristive switching mechanism for metal/oxide/metal nanodevices. Nature Nanotechnology, 2008, 3, 429-433.	15.6	2,578
3	â€˜Memristiveâ€™ switches enable â€˜statefulâ€™ logic operations via material implication. Nature, 2010, 464, 873-876.	13.7	1,828
4	Memristors with diffusive dynamics as synaptic emulators for neuromorphic computing. Nature Materials, 2017, 16, 101-108.	13.3	1,655
5	Fully hardware-implemented memristor convolutional neural network. Nature, 2020, 577, 641-646.	13.7	1,198
6	Memristive crossbar arrays for brain-inspired computing. Nature Materials, 2019, 18, 309-323.	13.3	1,058
7	Analogue signal and image processing with large memristor crossbars. Nature Electronics, 2018, 1, 52-59.	13.1	879
8	Fully memristive neural networks for pattern classification with unsupervised learning. Nature Electronics, 2018, 1, 137-145.	13.1	787
9	The mechanism of electroforming of metal oxide memristive switches. Nanotechnology, 2009, 20, 215201.	1.3	699
10	Resistive switching materials forÂinformation processing. Nature Reviews Materials, 2020, 5, 173-195.	23.3	668
11	Memristorâ˜'CMOS Hybrid Integrated Circuits for Reconfigurable Logic. Nano Letters, 2009, 9, 3640-3645.	4.5	628
12	Switching dynamics in titanium dioxide memristive devices. Journal of Applied Physics, 2009, 106, .	1.1	609
13	Efficient and self-adaptive in-situ learning in multilayer memristor neural networks. Nature Communications, 2018, 9, 2385.	5.8	575
14	High switching endurance in TaOx memristive devices. Applied Physics Letters, 2010, 97, .	1.5	543
15	Robust memristors based on layered two-dimensional materials. Nature Electronics, 2018, 1, 130-136.	13.1	539
16	Memristorâ€Based Analog Computation and Neural Network Classification with a Dot Product Engine. Advanced Materials, 2018, 30, 1705914.	11.1	517
17	Parallel programming of an ionic floating-gate memory array for scalable neuromorphic computing. Science, 2019, 364, 570-574.	6.0	484
18	Recommended Methods to Study Resistive Switching Devices. Advanced Electronic Materials, 2019, 5, 1800143.	2.6	452

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19	Bridging Biological and Artificial Neural Networks with Emerging Neuromorphic Devices: Fundamentals, Progress, and Challenges. Advanced Materials, 2019, 31, e1902761.	11.1	418
20	Anatomy of a Nanoscale Conduction Channel Reveals the Mechanism of a Highâ€Performance Memristor. Advanced Materials, 2011, 23, 5633-5640.	11.1	393
21	Memristor crossbar arrays with 6-nm half-pitch and 2-nm critical dimension. Nature Nanotechnology, 2019, 14, 35-39.	15.6	381
22	Review of memristor devices in neuromorphic computing: materials sciences and device challenges. Journal Physics D: Applied Physics, 2018, 51, 503002.	1.3	326
23	Direct Identification of the Conducting Channels in a Functioning Memristive Device. Advanced Materials, 2010, 22, 3573-3577.	11.1	307
24	Emerging Memory Devices for Neuromorphic Computing. Advanced Materials Technologies, 2019, 4, 1800589.	3.0	307
25	An artificial nociceptor based on a diffusive memristor. Nature Communications, 2018, 9, 417.	5.8	295
26	Anatomy of Ag/Hafniaâ€Based Selectors with 10¹⁰ Nonlinearity. Advanced Materials, 2017, 29, 1604457.	11.1	292
27	Long short-term memory networks in memristor crossbar arrays. Nature Machine Intelligence, 2019, 1, 49-57.	8.3	288
28	A novel true random number generator based on a stochastic diffusive memristor. Nature Communications, 2017, 8, 882.	5.8	287
29	Understanding memristive switching via in situ characterization and device modeling. Nature Communications, 2019, 10, 3453.	5.8	275
30	Highâ€Speed and Lowâ€Energy Nitride Memristors. Advanced Functional Materials, 2016, 26, 5290-5296.	7.8	264
31	Reinforcement learning with analogue memristor arrays. Nature Electronics, 2019, 2, 115-124.	13.1	247
32	Flexible three-dimensional artificial synapse networks with correlated learning and trainable memory capability. Nature Communications, 2017, 8, 752.	5.8	245
33	Three-dimensional memristor circuits as complex neural networks. Nature Electronics, 2020, 3, 225-232.	13.1	242
34	Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications. Advanced Functional Materials, 2018, 28, 1704862.	7.8	239
35	An artificial spiking afferent nerve based on Mott memristors for neurorobotics. Nature Communications, 2020, 11, 51.	5.8	217
36	Brain-inspired computing with memristors: Challenges in devices, circuits, and systems. Applied Physics Reviews, 2020, 7, .	5.5	217

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37	2022 roadmap on neuromorphic computing and engineering. Neuromorphic Computing and Engineering, 2022, 2, 022501.	2.8	217
38	Gate-tunable van der Waals heterostructure for reconfigurable neural network vision sensor. Science Advances, 2020, 6, eaba6173.	4.7	202
39	In situ training of feed-forward and recurrent convolutional memristor networks. Nature Machine Intelligence, 2019, 1, 434-442.	8.3	201
40	Capacitive neural network with neuro-transistors. Nature Communications, 2018, 9, 3208.	5.8	199
41	Power-efficient combinatorial optimization using intrinsic noise in memristor Hopfield neural networks. Nature Electronics, 2020, 3, 409-418.	13.1	196
42	State Dynamics and Modeling of Tantalum Oxide Memristors. IEEE Transactions on Electron Devices, 2013, 60, 2194-2202.	1.6	183
43	Engineering nonlinearity into memristors for passive crossbar applications. Applied Physics Letters, 2012, 100, .	1.5	179
44	Sub-10 nm Ta Channel Responsible for Superior Performance of a HfO2 Memristor. Scientific Reports, 2016, 6, 28525.	1.6	177
45	Electrical Performance and Scalability of Pt Dispersed SiO₂ Nanometallic Resistance Switch. Nano Letters, 2013, 13, 3213-3217.	4.5	175
46	Low-Power, Self-Rectifying, and Forming-Free Memristor with an Asymmetric Programing Voltage for a High-Density Crossbar Application. Nano Letters, 2016, 16, 6724-6732.	4.5	171
47	CMOS-integrated memristive non-volatile computing-in-memory for AI edge processors. Nature Electronics, 2019, 2, 420-428.	13.1	161
48	Silicon Oxide (SiO<i>_x</i>): A Promising Material for Resistance Switching?. Advanced Materials, 2018, 30, e1801187.	11.1	156
49	Three-dimensional crossbar arrays of self-rectifying Si/SiO2/Si memristors. Nature Communications, 2017, 8, 15666.	5.8	153
50	Reservoir Computing Using Diffusive Memristors. Advanced Intelligent Systems, 2019, 1, 1900084.	3.3	147
51	Bioinspired bio-voltage memristors. Nature Communications, 2020, 11, 1861.	5.8	144
52	Power-efficient neural network with artificial dendrites. Nature Nanotechnology, 2020, 15, 776-782.	15.6	141
53	Metal/TiO2 interfaces for memristive switches. Applied Physics A: Materials Science and Processing, 2011, 102, 785-789.	1.1	138
54	Standards for the Characterization of Endurance in Resistive Switching Devices. ACS Nano, 2021, 15, 17214-17231.	7.3	128

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55	Continuous Electrical Tuning of the Chemical Composition of TaO_{<i>x</i>}-Based Memristors. ACS Nano, 2012, 6, 2312-2318.	7.3	119
56	Mimicking Classical Conditioning Based on a Single Flexible Memristor. Advanced Materials, 2017, 29, 1602890.	11.1	119
57	Roadmap on emerging hardware and technology for machine learning. Nanotechnology, 2021, 32, 012002.	1.3	104
58	Trilayer Tunnel Selectors for Memristor Memory Cells. Advanced Materials, 2016, 28, 356-362.	11.1	96
59	Quantized conductance coincides with state instability and excess noise in tantalum oxide memristors. Nature Communications, 2016, 7, 11142.	5.8	95
60	Artificial Neural Network (ANN) to Spiking Neural Network (SNN) Converters Based on Diffusive Memristors. Advanced Electronic Materials, 2019, 5, 1900060.	2.6	92
61	Spectromicroscopy of tantalum oxide memristors. Applied Physics Letters, 2011, 98, .	1.5	85
62	Low-Voltage, CMOS-Free Synaptic Memory Based on Li<i>_X</i>TiO₂ Redox Transistors. ACS Applied Materials & Interfaces, 2019, 11, 38982-38992.	4.0	78
63	Feedback write scheme for memristive switching devices. Applied Physics A: Materials Science and Processing, 2011, 102, 973-982.	1.1	75
64	Truly Electroformingâ€Free and Lowâ€Energy Memristors with Preconditioned Conductive Tunneling Paths. Advanced Functional Materials, 2017, 27, 1702010.	7.8	75
65	Observation of two resistance switching modes in TiO₂memristive devices electroformed at low current. Nanotechnology, 2011, 22, 254007.	1.3	71
66	A provable key destruction scheme based on memristive crossbar arrays. Nature Electronics, 2018, 1, 548-554.	13.1	61
67	A Lowâ€Current and Analog Memristor with Ru as Mobile Species. Advanced Materials, 2020, 32, e1904599.	11.1	59
68	Electronic structure and transport measurements of amorphous transition-metal oxides: observation of Fermi glass behavior. Applied Physics A: Materials Science and Processing, 2012, 107, 1-11.	1.1	58
69	Mott-transition-based RRAM. Materials Today, 2019, 28, 63-80.	8.3	56
70	A Memristor with Low Switching Current and Voltage for 1S1R Integration and Array Operation. Advanced Electronic Materials, 2020, 6, 1901411.	2.6	51
71	Integration and Co-design of Memristive Devices and Algorithms for Artificial Intelligence. IScience, 2020, 23, 101809.	1.9	49
72	Nonlinearity in Memristors for Neuromorphic Dynamic Systems. Small Science, 2022, 2, 2100049.	5.8	46

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73	A compact modeling of TiO2-TiO2â€“<i>x</i> memristor. Applied Physics Letters, 2013, 102, .	1.5	40
74	A fully hardware-based memristive multilayer neural network. Science Advances, 2021, 7, eabj4801.	4.7	37
75	Electrochemical metallization switching with a platinum group metal in different oxides. Nanoscale, 2016, 8, 14023-14030.	2.8	35
76	Battery-like artificial synapses. Nature Materials, 2017, 16, 396-397.	13.3	35
77	Characteristics and transport mechanisms of triple switching regimes of TaOx memristor. Applied Physics Letters, 2017, 110, .	1.5	35
78	An efficient analog Hamming distance comparator realized with a unipolar memristor array: a showcase of physical computing. Scientific Reports, 2017, 7, 40135.	1.6	27
79	In-Memory Computing with Memristor Arrays. , 2018, , .		26
80	A niobium oxide-tantalum oxide selector-memristor self-aligned nanostack. Applied Physics Letters, 2017, 110, .	1.5	25
81	Inducing tunable switching behavior in a single memristor. Applied Materials Today, 2018, 11, 280-290.	2.3	21
82	A Dynamical Compact Model of Diffusive and Drift Memristors for Neuromorphic Computing. Advanced Electronic Materials, 2022, 8, 2100696.	2.6	19
83	Artificial neural networks based on memristive devices. Science China Information Sciences, 2018, 61, 1.	2.7	18
84	Timing Selector: Using Transient Switching Dynamics to Solve the Sneak Path Issue of Crossbar Arrays. Small Science, 2022, 2, 2100072.	5.8	18
85	An energy-efficient and high-throughput bitwise CNN on sneak-path-free digital ReRAM crossbar. , 2017, , .		17
86	Pulse-Width Modulation based Dot-Product Engine for Neuromorphic Computing System using Memristor Crossbar Array. , 2018, , .		17
87	Experimental Demonstration of Conversion-Based SNNs with 1T1R Mott Neurons for Neuromorphic Inference. , 2019, , .		17
88	Large Memristor Crossbars for Analog Computing. , 2018, , .		14
89	Engineering Tunneling Selector to Achieve High Non-linearity for 1S1R Integration. Frontiers in Nanotechnology, 2021, 3, .	2.4	10
90	Efficient AI with MRAM. Nature Electronics, 2022, 5, 67-68.	13.1	9

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91	Learning with Resistive Switching Neural Networks. , 2019, , .		6
92	Memristor-CMOS Analog Coprocessor for Acceleration of High-Performance Computing Applications. ACM Journal on Emerging Technologies in Computing Systems, 2018, 14, 1-30.	1.8	5
93	RRAM/memristor for computing. , 2019, , 539-583.		4
94	The secret order of disorder. Nature Materials, 2021, , .	13.3	3
95	A compact model for selectors based on metal doped electrolyte. Applied Physics A: Materials Science and Processing, 2018, 124, 1.	1.1	2
96	Ta/HfO2-based Memristor and Crossbar Arrays for In-Memory Computing. , 2022, , 167-188.		1
97	Neuronal realizations based on memristive devices. , 2020, , 407-426.		0
98	All Hardware-Based Two-Layer Perceptron Implemented in Memristor Crossbar Arrays. , 2021, , .		0
99	Reset Switching Statistics of TaOx-Based Memristor. Kluwer International Series in Electronic Materials: Science and Technology, 2022, , 187-195.	0.3	0
100	(Invited) Computing with Memristive Devices and Arrays. ECS Meeting Abstracts, 2019, , .	0.0	0
101	Low-Voltage, CMOS-Free Synaptic Memory Based on LiXTiO2 Redox Transistors. ECS Meeting Abstracts, 2019, , .	0.0	0
102	Memristive devices and arrays for neuromorphic computing. , 2020, , .		0
103	Timing Selector: using transient switching dynamics to solve the sneak path issue of crossbar arrays. , 2022, , .		0