J Joshua Yang

List of Publications by Year
in descending order

103 papers	28,872 citations	15504 65 h-index	45317 90 g-index
105 all docs	105 docs citations	105 times ranked	12857 citing authors

#	Article	IF	Citations
1	Nonlinearity in Memristors for Neuromorphic Dynamic Systems. Small Science, 2022, 2, 2100049.	9.9	46
2	Timing Selector: Using Transient Switching Dynamics to Solve the Sneak Path Issue of Crossbar Arrays. Small Science, 2022, 2, 2100072.	9.9	18
3	A Dynamical Compact Model of Diffusive and Drift Memristors for Neuromorphic Computing. Advanced Electronic Materials, 2022, 8, 2100696.	5.1	19
4	Reset Switching Statistics of TaOx-Based Memristor. Kluwer International Series in Electronic Materials: Science and Technology, 2022, , 187-195.	0.5	0
5	2022 roadmap on neuromorphic computing and engineering. Neuromorphic Computing and Engineering, 2022, 2, 022501.	5.9	217
6	Efficient AI with MRAM. Nature Electronics, 2022, 5, 67-68.	26.0	9
7	Ta/HfO2-based Memristor and Crossbar Arrays for In-Memory Computing. , 2022, , 167-188.		1
8	Timing Selector: using transient switching dynamics to solve the sneak path issue of crossbar arrays. , 2022, , .		0
9	Roadmap on emerging hardware and technology for machine learning. Nanotechnology, 2021, 32, 012002.	2.6	104
10	Engineering Tunneling Selector to Achieve High Non-linearity for 1S1R Integration. Frontiers in Nanotechnology, 2021, 3, .	4.8	10
11	All Hardware-Based Two-Layer Perceptron Implemented in Memristor Crossbar Arrays. , 2021, , .		0
12	The secret order of disorder. Nature Materials, 2021, , .	27.5	3
13	Standards for the Characterization of Endurance in Resistive Switching Devices. ACS Nano, 2021, 15, 17214-17231.	14.6	128
14	A fully hardware-based memristive multilayer neural network. Science Advances, 2021, 7, eabj4801.	10.3	37
15	An artificial spiking afferent nerve based on Mott memristors for neurorobotics. Nature Communications, 2020, 11, 51.	12.8	217
16	Integration and Co-design of Memristive Devices and Algorithms for Artificial Intelligence. IScience, 2020, 23, 101809.	4.1	49
17	A Memristor with Low Switching Current and Voltage for 1S1R Integration and Array Operation. Advanced Electronic Materials, 2020, 6, 1901411.	5.1	51
18	Neuronal realizations based on memristive devices. , 2020, , 407-426.		0

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19	Power-efficient neural network with artificial dendrites. Nature Nanotechnology, 2020, 15, 776-782.	31.5	141
20	Gate-tunable van der Waals heterostructure for reconfigurable neural network vision sensor. Science Advances, 2020, 6, eaba6173.	10.3	202
21	Power-efficient combinatorial optimization using intrinsic noise in memristor Hopfield neural networks. Nature Electronics, 2020, 3, 409-418.	26.0	196
22	Resistive switching materials forÂinformation processing. Nature Reviews Materials, 2020, 5, 173-195.	48.7	668
23	A Lowâ€Current and Analog Memristor with Ru as Mobile Species. Advanced Materials, 2020, 32, e1904599.	21.0	59
24	Fully hardware-implemented memristor convolutional neural network. Nature, 2020, 577, 641-646.	27.8	1,198
25	Brain-inspired computing with memristors: Challenges in devices, circuits, and systems. Applied Physics Reviews, 2020, 7, .	11.3	217
26	Three-dimensional memristor circuits as complex neural networks. Nature Electronics, 2020, 3, 225-232.	26.0	242
27	Bioinspired bio-voltage memristors. Nature Communications, 2020, 11, 1861.	12.8	144
28	Memristive devices and arrays for neuromorphic computing. , 2020, , .		0
29	Understanding memristive switching via in situ characterization and device modeling. Nature Communications, 2019, 10, 3453.	12.8	275
30	Mott-transition-based RRAM. Materials Today, 2019, 28, 63-80.	14.2	56
31	Reservoir Computing Using Diffusive Memristors. Advanced Intelligent Systems, 2019, 1, 1900084.	6.1	147
32	Bridging Biological and Artificial Neural Networks with Emerging Neuromorphic Devices: Fundamentals, Progress, and Challenges. Advanced Materials, 2019, 31, e1902761.	21.0	418
33	In situ training of feed-forward and recurrent convolutional memristor networks. Nature Machine Intelligence, 2019, 1, 434-442.	16.0	201
34	Low-Voltage, CMOS-Free Synaptic Memory Based on Li<i>_X</i>TiO₂ Redox Transistors. ACS Applied Materials & Interfaces, 2019, 11, 38982-38992.	8.0	78
35	RRAM/memristor for computing. , 2019, , 539-583.		4
36	Parallel programming of an ionic floating-gate memory array for scalable neuromorphic computing. Science, 2019, 364, 570-574.	12.6	484

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37	Memristive crossbar arrays for brain-inspired computing. Nature Materials, 2019, 18, 309-323.	27.5	1,058
38	Artificial Neural Network (ANN) to Spiking Neural Network (SNN) Converters Based on Diffusive Memristors. Advanced Electronic Materials, 2019, 5, 1900060.	5.1	92
39	Reinforcement learning with analogue memristor arrays. Nature Electronics, 2019, 2, 115-124.	26.0	247
40	Learning with Resistive Switching Neural Networks. , 2019, , .		6
41	Experimental Demonstration of Conversion-Based SNNs with 1T1R Mott Neurons for Neuromorphic Inference. , 2019, , .		17
42	Memristor crossbar arrays with 6-nm half-pitch and 2-nm critical dimension. Nature Nanotechnology, 2019, 14, 35-39.	31.5	381
43	Long short-term memory networks in memristor crossbar arrays. Nature Machine Intelligence, 2019, 1, 49-57.	16.0	288
44	Emerging Memory Devices for Neuromorphic Computing. Advanced Materials Technologies, 2019, 4, 1800589.	5.8	307
45	Recommended Methods to Study Resistive Switching Devices. Advanced Electronic Materials, 2019, 5, 1800143.	5.1	452
46	CMOS-integrated memristive non-volatile computing-in-memory for AI edge processors. Nature Electronics, 2019, 2, 420-428.	26.0	161
47	(Invited) Computing with Memristive Devices and Arrays. ECS Meeting Abstracts, 2019, , .	0.0	0
48	Low-Voltage, CMOS-Free Synaptic Memory Based on LiXTiO2 Redox Transistors. ECS Meeting Abstracts, 2019, , .	0.0	0
49	Robust memristors based on layered two-dimensional materials. Nature Electronics, 2018, 1, 130-136.	26.0	539
50	An artificial nociceptor based on a diffusive memristor. Nature Communications, 2018, 9, 417.	12.8	295
51	Fully memristive neural networks for pattern classification with unsupervised learning. Nature Electronics, 2018, 1, 137-145.	26.0	787
52	Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications. Advanced Functional Materials, 2018, 28, 1704862.	14.9	239
53	Memristorâ€Based Analog Computation and Neural Network Classification with a Dot Product Engine. Advanced Materials, 2018, 30, 1705914.	21.0	517
54	A compact model for selectors based on metal doped electrolyte. Applied Physics A: Materials Science and Processing, 2018, 124, 1.	2.3	2

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55	A provable key destruction scheme based on memristive crossbar arrays. Nature Electronics, 2018, 1, 548-554.	26.0	61
56	Memristor-CMOS Analog Coprocessor for Acceleration of High-Performance Computing Applications. ACM Journal on Emerging Technologies in Computing Systems, 2018, 14, 1-30.	2.3	5
57	Review of memristor devices in neuromorphic computing: materials sciences and device challenges. Journal Physics D: Applied Physics, 2018, 51, 503002.	2.8	326
58	Artificial neural networks based on memristive devices. Science China Information Sciences, 2018, 61, 1.	4.3	18
59	Silicon Oxide (SiO<i>_x</i>): A Promising Material for Resistance Switching?. Advanced Materials, 2018, 30, e1801187.	21.0	156
60	In-Memory Computing with Memristor Arrays. , 2018, , .		26
61	Inducing tunable switching behavior in a single memristor. Applied Materials Today, 2018, 11, 280-290.	4.3	21
62	Large Memristor Crossbars for Analog Computing. , 2018, , .		14
63	Capacitive neural network with neuro-transistors. Nature Communications, 2018, 9, 3208.	12.8	199
64	Pulse-Width Modulation based Dot-Product Engine for Neuromorphic Computing System using Memristor Crossbar Array. , 2018, , .		17
65	Efficient and self-adaptive in-situ learning in multilayer memristor neural networks. Nature Communications, 2018, 9, 2385.	12.8	575
66	Analogue signal and image processing with large memristor crossbars. Nature Electronics, 2018, 1, 52-59.	26.0	879
67	Anatomy of Ag/Hafniaâ€Based Selectors with 10¹⁰ Nonlinearity. Advanced Materials, 2017, 29, 1604457.	21.0	292
68	Battery-like artificial synapses. Nature Materials, 2017, 16, 396-397.	27.5	35
69	An efficient analog Hamming distance comparator realized with a unipolar memristor array: a showcase of physical computing. Scientific Reports, 2017, 7, 40135.	3.3	27
70	A niobium oxide-tantalum oxide selector-memristor self-aligned nanostack. Applied Physics Letters, 2017, 110, .	3.3	25
71	Characteristics and transport mechanisms of triple switching regimes of TaOx memristor. Applied Physics Letters, 2017, 110, .	3.3	35
72	Three-dimensional crossbar arrays of self-rectifying Si/SiO2/Si memristors. Nature Communications, 2017, 8, 15666.	12.8	153

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73	Mimicking Classical Conditioning Based on a Single Flexible Memristor. Advanced Materials, 2017, 29, 1602890.	21.0	119
74	Flexible three-dimensional artificial synapse networks with correlated learning and trainable memory capability. Nature Communications, 2017, 8, 752.	12.8	245
75	A novel true random number generator based on a stochastic diffusive memristor. Nature Communications, 2017, 8, 882.	12.8	287
76	Truly Electroformingâ€Free and Lowâ€Energy Memristors with Preconditioned Conductive Tunneling Paths. Advanced Functional Materials, 2017, 27, 1702010.	14.9	75
77	Memristors with diffusive dynamics as synaptic emulators for neuromorphic computing. Nature Materials, 2017, 16, 101-108.	27.5	1,655
78	An energy-efficient and high-throughput bitwise CNN on sneak-path-free digital ReRAM crossbar. , 2017, , .		17
79	Sub-10 nm Ta Channel Responsible for Superior Performance of a HfO2 Memristor. Scientific Reports, 2016, 6, 28525.	3.3	177
80	Trilayer Tunnel Selectors for Memristor Memory Cells. Advanced Materials, 2016, 28, 356-362.	21.0	96
81	Electrochemical metallization switching with a platinum group metal in different oxides. Nanoscale, 2016, 8, 14023-14030.	5.6	35
82	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.	9.1	171
83	Quantized conductance coincides with state instability and excess noise in tantalum oxide memristors. Nature Communications, 2016, 7, 11142.	12.8	95
84	Highâ€Speed and Lowâ€Energy Nitride Memristors. Advanced Functional Materials, 2016, 26, 5290-5296.	14.9	264
85	Memristive devices for computing. Nature Nanotechnology, 2013, 8, 13-24.	31.5	3,019
86	A compact modeling of TiO2-TiO2â€“<i>x</i> memristor. Applied Physics Letters, 2013, 102, .	3.3	40
87	Electrical Performance and Scalability of Pt Dispersed SiO₂ Nanometallic Resistance Switch. Nano Letters, 2013, 13, 3213-3217.	9.1	175
88	State Dynamics and Modeling of Tantalum Oxide Memristors. IEEE Transactions on Electron Devices, 2013, 60, 2194-2202.	3.0	183
89	Engineering nonlinearity into memristors for passive crossbar applications. Applied Physics Letters, 2012, 100, .	3.3	179
90	Continuous Electrical Tuning of the Chemical Composition of TaO_{<i>x</i>}-Based Memristors. ACS Nano, 2012, 6, 2312-2318.	14.6	119

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91	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.	2.3	58
92	Spectromicroscopy of tantalum oxide memristors. Applied Physics Letters, 2011, 98, .	3.3	85
93	Metal/TiO2 interfaces for memristive switches. Applied Physics A: Materials Science and Processing, 2011, 102, 785-789.	2.3	138
94	Feedback write scheme for memristive switching devices. Applied Physics A: Materials Science and Processing, 2011, 102, 973-982.	2.3	75
95	Anatomy of a Nanoscale Conduction Channel Reveals the Mechanism of a Highâ€Performance Memristor. Advanced Materials, 2011, 23, 5633-5640.	21.0	393
96	Observation of two resistance switching modes in TiO₂memristive devices electroformed at low current. Nanotechnology, 2011, 22, 254007.	2.6	71
97	Direct Identification of the Conducting Channels in a Functioning Memristive Device. Advanced Materials, 2010, 22, 3573-3577.	21.0	307
98	â€˜Memristiveâ€™ switches enable â€˜statefulâ€™ logic operations via material implication. Nature, 2010, 464, 873-876.	27.8	1,828
99	High switching endurance in TaOx memristive devices. Applied Physics Letters, 2010, 97, .	3.3	543
100	Memristorâˆ’CMOS Hybrid Integrated Circuits for Reconfigurable Logic. Nano Letters, 2009, 9, 3640-3645.	9.1	628
101	The mechanism of electroforming of metal oxide memristive switches. Nanotechnology, 2009, 20, 215201.	2.6	699
102	Switching dynamics in titanium dioxide memristive devices. Journal of Applied Physics, 2009, 106, .	2.5	609
103	Memristive switching mechanism for metal/oxide/metal nanodevices. Nature Nanotechnology, 2008, 3, 429-433.	31.5	2,578