J Joshua Yang

List of Publications by Citations

97 papers	19,772 citations	58 h-index	105 g-index
105 ext. papers	24,164 ext. citations	16.5 avg, IF	7.16 L-index

#	Paper	IF	Citations
97	Memristive devices for computing. *Nature Nanotechnology*, **2013**, 8, 13-24	28.7	2406
96	Memristive switching mechanism for metal/oxide/metal nanodevices. *Nature Nanotechnology*, **2008**, 3, 429-33	28.7	2239
95	Memristive switches enable stateful logic operations via material implication. *Nature*, **2010**, 464, 873-6	50.4	1405
94	Memristors with diffusive dynamics as synaptic emulators for neuromorphic computing. *Nature Materials*, **2017**, 16, 101-108	27	1201
93	The mechanism of electroforming of metal oxide memristive switches. *Nanotechnology*, **2009**, 20, 215203	3.4	591
92	Memristive crossbar arrays for brain-inspired computing. *Nature Materials*, **2019**, 18, 309-323	27	582
91	Analogue signal and image processing with large memristor crossbars. *Nature Electronics*, **2018**, 1, 52-59	28.4	550
90	Fully hardware-implemented memristor convolutional neural network. *Nature*, **2020**, 577, 641-646	50.4	529
89	Fully memristive neural networks for pattern classification with unsupervised learning. *Nature Electronics*, **2018**, 1, 137-145	28.4	511
88	Memristor-CMOS hybrid integrated circuits for reconfigurable logic. *Nano Letters*, **2009**, 9, 3640-5	11.5	507
87	Switching dynamics in titanium dioxide memristive devices. *Journal of Applied Physics*, **2009**, 106, 074508	2.5	506
86	High switching endurance in TaOx memristive devices. *Applied Physics Letters*, **2010**, 97, 232102	3.4	467
85	Efficient and self-adaptive in-situ learning in multilayer memristor neural networks. *Nature Communications*, **2018**, 9, 2385	17.4	371
84	Robust memristors based on layered two-dimensional materials. *Nature Electronics*, **2018**, 1, 130-136	28.4	348
83	Memristor-Based Analog Computation and Neural Network Classification with a Dot Product Engine. *Advanced Materials*, **2018**, 30, 1705914	24	339
82	Anatomy of a nanoscale conduction channel reveals the mechanism of a high-performance memristor. *Advanced Materials*, **2011**, 23, 5633-40	24	338
81	Resistive switching materials for information processing. *Nature Reviews Materials*, **2020**, 5, 173-195	73.3	318

80	Recommended Methods to Study Resistive Switching Devices. *Advanced Electronic Materials*, **2019**, 5, 1800143	6.4	297
79	Parallel programming of an ionic floating-gate memory array for scalable neuromorphic computing. *Science*, **2019**, 364, 570-574	33.3	296
78	Direct identification of the conducting channels in a functioning memristive device. *Advanced Materials*, **2010**, 22, 3573-7	24	278
77	Anatomy of Ag/Hafnia-Based Selectors with 10 Nonlinearity. *Advanced Materials*, **2017**, 29, 1604457	24	245
76	Memristor crossbar arrays with 6-nm half-pitch and 2-nm critical dimension. *Nature Nanotechnology* , **2019**, 14, 35-39	28.7	231
75	Bridging Biological and Artificial Neural Networks with Emerging Neuromorphic Devices: Fundamentals, Progress, and Challenges. *Advanced Materials*, **2019**, 31, e1902761	24	220
74	An artificial nociceptor based on a diffusive memristor. *Nature Communications*, **2018**, 9, 417	17.4	183
73	Review of memristor devices in neuromorphic computing: materials sciences and device challenges. *Journal Physics D: Applied Physics*, **2018**, 51, 503002	3	183
72	Emerging Memory Devices for Neuromorphic Computing. *Advanced Materials Technologies*, **2019**, 4, 1800589	6.8	181
71	A novel true random number generator based on a stochastic diffusive memristor. *Nature Communications*, **2017**, 8, 882	17.4	180
70	High-Speed and Low-Energy Nitride Memristors. *Advanced Functional Materials*, **2016**, 26, 5290-5296	15.6	177
69	Flexible three-dimensional artificial synapse networks with correlated learning and trainable memory capability. *Nature Communications*, **2017**, 8, 752	17.4	176
68	Long short-term memory networks in memristor crossbar arrays. *Nature Machine Intelligence*, **2019**, 1, 49-57	22.5	176
67	Threshold Switching of Ag or Cu in Dielectrics: Materials, Mechanism, and Applications. *Advanced Functional Materials*, **2018**, 28, 1704862	15.6	168
66	Reinforcement learning with analogue memristor arrays. *Nature Electronics*, **2019**, 2, 115-124	28.4	166
65	Engineering nonlinearity into memristors for passive crossbar applications. *Applied Physics Letters*, **2012**, 100, 113501	3.4	162
64	Electrical performance and scalability of Pt dispersed SiO2 nanometallic resistance switch. *Nano Letters*, **2013**, 13, 3213-7	11.5	146
63	Understanding memristive switching via in situ characterization and device modeling. *Nature Communications*, **2019**, 10, 3453	17.4	138

62	Capacitive neural network with neuro-transistors. *Nature Communications*, **2018**, 9, 3208	17.4	132
61	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	11.5	131
60	Metal/TiO2 interfaces for memristive switches. *Applied Physics A: Materials Science and Processing*, **2011**, 102, 785-789	2.6	128
59	Sub-10 nm Ta Channel Responsible for Superior Performance of a HfO2 Memristor. *Scientific Reports*, **2016**, 6, 28525	4.9	128
58	State Dynamics and Modeling of Tantalum Oxide Memristors. *IEEE Transactions on Electron Devices*, **2013**, 60, 2194-2202	2.9	120
57	Three-dimensional crossbar arrays of self-rectifying Si/SiO/Si memristors. *Nature Communications*, **2017**, 8, 15666	17.4	115
56	Three-dimensional memristor circuits as complex neural networks. *Nature Electronics*, **2020**, 3, 225-232	28.4	112
55	Brain-inspired computing with memristors: Challenges in devices, circuits, and systems. *Applied Physics Reviews*, **2020**, 7, 011308	17.3	105
54	An artificial spiking afferent nerve based on Mott memristors for neurorobotics. *Nature Communications*, **2020**, 11, 51	17.4	105
53	Silicon Oxide (SiO): A Promising Material for Resistance Switching?. *Advanced Materials*, **2018**, 30, e1801187	24	105
52	Continuous electrical tuning of the chemical composition of TaO(x)-based memristors. *ACS Nano*, **2012**, 6, 2312-8	16.7	100
51	Mimicking Classical Conditioning Based on a Single Flexible Memristor. *Advanced Materials*, **2017**, 29, 1602890	24	93
50	In situ training of feed-forward and recurrent convolutional memristor networks. *Nature Machine Intelligence*, **2019**, 1, 434-442	22.5	93
49	Trilayer Tunnel Selectors for Memristor Memory Cells. *Advanced Materials*, **2016**, 28, 356-62	24	83
48	Power-efficient combinatorial optimization using intrinsic noise in memristor Hopfield neural networks. *Nature Electronics*, **2020**, 3, 409-418	28.4	79
47	Bioinspired bio-voltage memristors. *Nature Communications*, **2020**, 11, 1861	17.4	79
46	Spectromicroscopy of tantalum oxide memristors. *Applied Physics Letters*, **2011**, 98, 242114	3.4	77
45	CMOS-integrated memristive non-volatile computing-in-memory for AI edge processors. *Nature Electronics*, **2019**, 2, 420-428	28.4	74

44	Quantized conductance coincides with state instability and excess noise in tantalum oxide memristors. *Nature Communications*, **2016**, 7, 11142	17.4	69
43	Gate-tunable van der Waals heterostructure for reconfigurable neural network vision sensor. *Science Advances*, **2020**, 6, eaba6173	14.3	66
42	Reservoir Computing Using Diffusive Memristors. *Advanced Intelligent Systems*, **2019**, 1, 1900084	6	65
41	Feedback write scheme for memristive switching devices. *Applied Physics A: Materials Science and Processing*, **2011**, 102, 973-982	2.6	63
40	Observation of two resistance switching modes in TiO2 memristive devices electroformed at low current. *Nanotechnology*, **2011**, 22, 254007	3.4	62
39	Truly Electroforming-Free and Low-Energy Memristors with Preconditioned Conductive Tunneling Paths. *Advanced Functional Materials*, **2017**, 27, 1702010	15.6	56
38	Artificial Neural Network (ANN) to Spiking Neural Network (SNN) Converters Based on Diffusive Memristors. *Advanced Electronic Materials*, **2019**, 5, 1900060	6.4	55
37	Power-efficient neural network with artificial dendrites. *Nature Nanotechnology*, **2020**, 15, 776-782	28.7	55
36	Low-Voltage, CMOS-Free Synaptic Memory Based on LiTiO Redox Transistors. *ACS Applied Materials & Interfaces*, **2019**, 11, 38982-38992	9.5	47
35	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	2.6	47
34	Roadmap on emerging hardware and technology for machine learning. *Nanotechnology*, **2021**, 32, 012002	3.4	45
33	Standards for the Characterization of Endurance in Resistive Switching Devices. *ACS Nano*, **2021**,	16.7	36
32	Electrochemical metallization switching with a platinum group metal in different oxides. *Nanoscale*, **2016**, 8, 14023-30	7.7	33
31	A Low-Current and Analog Memristor with Ru as Mobile Species. *Advanced Materials*, **2020**, 32, e1904599	24	32
30	A compact modeling of TiO2-TiO2 memristor. *Applied Physics Letters*, **2013**, 102, 153503	3.4	32
29	A provable key destruction scheme based on memristive crossbar arrays. *Nature Electronics*, **2018**, 1, 548-554	28.4	32
28	Organic electronics: Battery-like artificial synapses. *Nature Materials*, **2017**, 16, 396-397	27	24
27	Mott-transition-based RRAM. *Materials Today*, **2019**, 28, 63-80	21.8	24

26	2022 roadmap on neuromorphic computing and engineering. *Neuromorphic Computing and Engineering*,		24
25	An efficient analog Hamming distance comparator realized with a unipolar memristor array: a showcase of physical computing. *Scientific Reports*, **2017**, 7, 40135	4.9	22
24	A Memristor with Low Switching Current and Voltage for 1S1R Integration and Array Operation. *Advanced Electronic Materials*, **2020**, 6, 1901411	6.4	21
23	Characteristics and transport mechanisms of triple switching regimes of TaOx memristor. *Applied Physics Letters*, **2017**, 110, 173504	3.4	20
22	Integration and Co-design of Memristive Devices and Algorithms for Artificial Intelligence. *IScience*, **2020**, 23, 101809	6.1	20
21	Inducing tunable switching behavior in a single memristor. *Applied Materials Today*, **2018**, 11, 280-290	6.6	18
20	A niobium oxide-tantalum oxide selector-memristor self-aligned nanostack. *Applied Physics Letters*, **2017**, 110, 103102	3.4	17
19	An energy-efficient and high-throughput bitwise CNN on sneak-path-free digital ReRAM crossbar **2017**,		12
18	In-Memory Computing with Memristor Arrays **2018**,		12
17	Nonlinearity in Memristors for Neuromorphic Dynamic Systems. *Small Science*,2100049		12
16	Pulse-Width Modulation based Dot-Product Engine for Neuromorphic Computing System using Memristor Crossbar Array **2018**,		10
15	A fully hardware-based memristive multilayer neural network. *Science Advances*, **2021**, 7, eabj4801	14.3	10
14	Experimental Demonstration of Conversion-Based SNNs with 1T1R Mott Neurons for Neuromorphic Inference **2019**,		10
13	Artificial neural networks based on memristive devices. *Science China Information Sciences*, **2018**, 61, 1	3.4	9
12	Timing Selector: Using Transient Switching Dynamics to Solve the Sneak Path Issue of Crossbar Arrays. *Small Science*,2100072		8
11	Large Memristor Crossbars for Analog Computing **2018**,		6
10	A Dynamical Compact Model of Diffusive and Drift Memristors for Neuromorphic Computing. *Advanced Electronic Materials*,2100696	6.4	6
9	Learning with Resistive Switching Neural Networks **2019**,		4

List of Publications

8	RRAM/memristor for computing **2019**, 539-583		2
7	A compact model for selectors based on metal doped electrolyte. *Applied Physics A: Materials Science and Processing*, **2018**, 124, 1	2.6	2
6	Engineering Tunneling Selector to Achieve High Non-linearity for 1S1R Integration. *Frontiers in Nanotechnology*, **2021**, 3,	5.5	2
5	Memristor-CMOS Analog Coprocessor for Acceleration of High-Performance Computing Applications. *ACM Journal on Emerging Technologies in Computing Systems*, **2018**, 14, 1-30	1.7	2
4	The secret order of disorder. *Nature Materials*, **2021**,	27	1
3	Neuronal realizations based on memristive devices **2020**, 407-426		
2	Reset Switching Statistics of TaOx-Based Memristor. *Kluwer International Series in Electronic Materials: Science and Technology*, **2022**, 187-195		
1	Ta/HfO2-based Memristor and Crossbar Arrays for In-Memory Computing **2022**, 167-188		