

Yuchao Yang

List of Publications by Year in descending order

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87
papers

7,433
citations

101496

36
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71651

76
g-index

88
all docs

88
docs citations

88
times ranked

5855
citing authors

#	ARTICLE	IF	CITATIONS
1	Observation of conducting filament growth in nanoscale resistive memories. Nature Communications, 2012, 3, 732.	5.8	957
2	Fully Room-Temperature-Fabricated Nonvolatile Resistive Memory for Ultrafast and High-Density Memory Application. Nano Letters, 2009, 9, 1636-1643.	4.5	805
3	Electrochemical dynamics of nanoscale metallic inclusions in dielectrics. Nature Communications, 2014, 5, 4232.	5.8	511
4	Recommended Methods to Study Resistive Switching Devices. Advanced Electronic Materials, 2019, 5, 1800143.	2.6	452
5	A comprehensive review on emerging artificial neuromorphic devices. Applied Physics Reviews, 2020, 7, .	5.5	417
6	Ion Gated Synaptic Transistors Based on 2D van der Waals Crystals with Tunable Diffusive Dynamics. Advanced Materials, 2018, 30, e1800195.	11.1	368
7	Engineering incremental resistive switching in TaO _x -based memristors for brain-inspired computing. Nanoscale, 2016, 8, 14015-14022.	2.8	271
8	Nanoscale resistive switching devices: mechanisms and modeling. Nanoscale, 2013, 5, 10076.	2.8	232
9	Brain-inspired computing with memristors: Challenges in devices, circuits, and systems. Applied Physics Reviews, 2020, 7, .	5.5	217
10	Complementary resistive switching in tantalum oxide-based resistive memory devices. Applied Physics Letters, 2012, 100, .	1.5	192
11	Spiking neurons with spatiotemporal dynamics and gain modulation for monolithically integrated memristive neural networks. Nature Communications, 2020, 11, 3399.	5.8	176
12	Oxide Heterostructure Resistive Memory. Nano Letters, 2013, 13, 2908-2915.	4.5	171
13	Dynamical memristors for higher-complexity neuromorphic computing. Nature Reviews Materials, 2022, 7, 575-591.	23.3	155
14	Probing nanoscale oxygen ion motion in memristive systems. Nature Communications, 2017, 8, 15173.	5.8	149
15	Memristive Physically Evolving Networks Enabling the Emulation of Heterosynaptic Plasticity. Advanced Materials, 2015, 27, 7720-7727.	11.1	139
16	Random telegraph noise and resistance switching analysis of oxide based resistive memory. Nanoscale, 2014, 6, 400-404.	2.8	129
17	Probing memristive switching in nanoionic devices. Nature Electronics, 2018, 1, 274-287.	13.1	128
18	Standards for the Characterization of Endurance in Resistive Switching Devices. ACS Nano, 2021, 15, 17214-17231.	7.3	128

#	ARTICLE	IF	CITATIONS
19	Roadmap on emerging hardware and technology for machine learning. Nanotechnology, 2021, 32, 012002.	1.3	104
20	Building Neuromorphic Circuits with Memristive Devices. IEEE Circuits and Systems Magazine, 2013, 13, 56-73.	2.6	95
21	Nonassociative learning implementation by a single memristor-based multi-terminal synaptic device. Nanoscale, 2016, 8, 18897-18904.	2.8	81
22	Dual-Gated MoS ₂ Neuristor for Neuromorphic Computing. ACS Applied Materials & Interfaces, 2019, 11, 41482-41489.	4.0	78
23	Vertical organic nanocrystal arrays for crossbar memristors with tuning switching dynamics toward neuromorphic computing. SmartMat, 2021, 2, 99-108.	6.4	73
24	Oxide Resistive Memory with Functionalized Graphene as Built-in Selector Element. Advanced Materials, 2014, 26, 3693-3699.	11.1	69
25	A calibratable sensory neuron based on epitaxial VO ₂ for spike-based neuromorphic multisensory system. Nature Communications, 2022, 13, .	5.8	67
26	Memristive Devices and Networks for Brain-Inspired Computing. Physica Status Solidi - Rapid Research Letters, 2019, 13, 1900029.	1.2	66
27	Multilayer Reservoir Computing Based on Ferroelectric In ₂ Se ₃ for Hierarchical Information Processing. Advanced Materials, 2022, 34, e2108826.	11.1	65
28	Conduction mechanisms, dynamics and stability in ReRAMs. Microelectronic Engineering, 2018, 187-188, 121-133.	1.1	59
29	Improvement of HfO _x -Based RRAM Device Variation by Inserting ALD TiN Buffer Layer. IEEE Electron Device Letters, 2018, 39, 819-822.	2.2	57
30	Multifunctional Nanoionic Devices Enabling Simultaneous Heterosynaptic Plasticity and Efficient In-Memory Boolean Logic. Advanced Electronic Materials, 2017, 3, 1700032.	2.6	56
31	Low Power Parylene-Based Memristors with a Graphene Barrier Layer for Flexible Electronics Applications. Advanced Electronic Materials, 2019, 5, 1800852.	2.6	56
32	Transiently chaotic simulated annealing based on intrinsic nonlinearity of memristors for efficient solution of optimization problems. Science Advances, 2020, 6, eaba9901.	4.7	51
33	Nonlinearity in Memristors for Neuromorphic Dynamic Systems. Small Science, 2022, 2, 2100049.	5.8	46
34	High-speed true random number generation based on paired memristors for security electronics. Nanotechnology, 2017, 28, 455202.	1.3	44
35	Conduction mechanism of a TaO _x -based selector and its application in crossbar memory arrays. Nanoscale, 2015, 7, 4964-4970.	2.8	42
36	Vertical WS ₂ /SnS ₂ van der Waals Heterostructure for Tunneling Transistors. Scientific Reports, 2018, 8, 17755.	1.6	40

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37	Stochastic neuron based on IGZO Schottky diodes for neuromorphic computing. APL Materials, 2019, 7, .	2.2	35
38	Electrochemical and thermodynamic processes of metal nanoclusters enabled biorealistic synapses and leaky-integrate-and-fire neurons. Materials Horizons, 2020, 7, 71-81.	6.4	35
39	Memristor-Based Efficient In-Memory Logic for Cryptologic and Arithmetic Applications. Advanced Materials Technologies, 2019, 4, 1900212.	3.0	33
40	Progress in the Characterizations and Understanding of Conducting Filaments in Resistive Switching Devices. IEEE Nanotechnology Magazine, 2016, 15, 465-472.	1.1	32
41	In-memory computing with emerging nonvolatile memory devices. Science China Information Sciences, 2021, 64, 1.	2.7	31
42	Artificial Shape Perception Retina Network Based on Tunable Memristive Neurons. Scientific Reports, 2018, 8, 13727.	1.6	30
43	Time-dependent variability in RRAM-based analog neuromorphic system for pattern recognition. , 2017, , .		29
44	Probing electrochemistry at the nanoscale: in situ TEM and STM characterizations of conducting filaments in memristive devices. Journal of Electroceramics, 2017, 39, 73-93.	0.8	28
45	Physically Transient True Random Number Generators Based on Paired Threshold Switches Enabling Monte Carlo Method Applications. IEEE Electron Device Letters, 2019, 40, 1096-1099.	2.2	26
46	Tuning analog resistive switching and plasticity in bilayer transition metal oxide based memristive synapses. RSC Advances, 2017, 7, 43132-43140.	1.7	25
47	Artificial Multisensory Neurons with Fused Haptic and Temperature Perception for Multimodal In-Sensor Computing. Advanced Intelligent Systems, 2022, 4, .	3.3	25
48	A Bamboo-Like GaN Microwire-Based Piezotronic Memristor. Advanced Functional Materials, 2016, 26, 5307-5314.	7.8	24
49	In-Memory Realization of Eligibility Traces Based on Conductance Drift of Phase Change Memory for Energy-Efficient Reinforcement Learning. Advanced Materials, 2022, 34, e2107811.	11.1	24
50	Encapsulation layer design and scalability in encapsulated vertical 3D RRAM. Nanotechnology, 2016, 27, 205202.	1.3	20
51	Neuromorphic Computing: Ion Gated Synaptic Transistors Based on 2D van der Waals Crystals with Tunable Diffusive Dynamics (Adv. Mater. 21/2018). Advanced Materials, 2018, 30, 1870149.	11.1	20
52	Bipolar to unipolar mode transition and imitation of metaplasticity in oxide based memristors with enhanced ionic conductivity. Journal of Applied Physics, 2018, 124, .	1.1	19
53	Spike-Enabled Audio Learning in Multilevel Synaptic Memristor Array-Based Spiking Neural Network. Advanced Intelligent Systems, 2022, 4, 2100151.	3.3	19
54	Interfacial redox processes in memristive devices based on valence change and electrochemical metallization. Faraday Discussions, 2019, 213, 41-52.	1.6	18

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55	A Memristor-Based In-Memory Computing Network for Hamming Code Error Correction. IEEE Electron Device Letters, 2019, 40, 1080-1083.	2.2	17
56	Investigation of NbOx-based volatile switching device with self-rectifying characteristics. Science China Information Sciences, 2019, 62, 1.	2.7	17
57	Efficient 16 Boolean logic and arithmetic based on bipolar oxide memristors. Science China Information Sciences, 2020, 63, 1.	2.7	16
58	Memristor-Based Biologically Plausible Memory Based on Discrete and Continuous Attractor Networks for Neuromorphic Systems. Advanced Intelligent Systems, 2020, 2, 2000001.	3.3	16
59	Flexible Polymer Device Based on Parylene-C with Memory and Temperature Sensing Functionalities. Polymers, 2017, 9, 310.	2.0	15
60	Physically Transient Optic-Neural Synapse for Secure In-Sensor Computing. IEEE Electron Device Letters, 2020, 41, 1641-1644.	2.2	14
61	Tolerance of intrinsic device variation in fuzzy restricted Boltzmann machine network based on memristive nano-synapses. Nano Futures, 2017, 1, 015003.	1.0	11
62	Memristors with alloyed electrodes. Nature Nanotechnology, 2020, 15, 510-511.	15.6	11
63	Artificial Astrocyte Memristor with Recoverable Linearity for Neuromorphic Computing. Advanced Electronic Materials, 2022, 8, 2100669.	2.6	10
64	Accelerated Local Training of CNNs by Optimized Direct Feedback Alignment Based on Stochasticity of 4 Mb C-doped Ge ₂ Sb ₂ Te ₅ PCM Chip in 40 nm Node. , 2020, , .		9
65	Dropout neuronal unit with tunable probability based on NbOx stochastic memristor for efficient suppression of overfitting. Microelectronic Engineering, 2022, 259, 111778.	1.1	9
66	VSDCA: A Voltage Sensing Differential Column Architecture Based on 1T2R RRAM Array for Computing-in-Memory Accelerators. IEEE Transactions on Circuits and Systems I: Regular Papers, 2022, 69, 4028-4041.	3.5	9
67	Thermal effect in ultra-high density 3D vertical and horizontal RRAM array. Physica Scripta, 2019, 94, 045001.	1.2	8
68	Embracing the era of neuromorphic computing. Journal of Semiconductors, 2021, 42, 010301.	2.0	6
69	Integration of biocompatible organic resistive memory and photoresistor for wearable image sensing application. Science China Information Sciences, 2018, 61, 1.	2.7	5
70	Memristive Devices: Switching Effects, Modeling, and Applications. , 2014, , 195-221.		4
71	Highly Uniform Two-Terminal Artificial Synapses Based on Polycrystalline Hf _{0.5} Zr _{0.5} O ₂ for Sparsified Back Propagation Networks. Advanced Electronic Materials, 2020, 6, 2000204.	2.6	4
72	Dual-mode dendritic devices enhanced neural network based on electrolyte gated transistors. Semiconductor Science and Technology, 2022, 37, 024002.	1.0	4

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73	Memristive devices based hardware for unlabeled data processing. <i>Neuromorphic Computing and Engineering</i> , 2022, 2, 022003.	2.8	4
74	1-HEMT-1-Memristor With Hardware Encryptor for Privacy-Preserving Image Processing. <i>IEEE Electron Device Letters</i> , 2022, 43, 1223-1226.	2.2	4
75	2022 roadmap on neuromorphic devices and applications research in China. <i>Neuromorphic Computing and Engineering</i> , 2022, 2, 042501.	2.8	4
76	Improvement of RRAM Device Performance Through On-Chip Resistors. <i>Materials Research Society Symposia Proceedings</i> , 2012, 1430, 149.	0.1	2
77	Resistive switching and synaptic plasticity in HfO ₂ -based memristors with single-layer and bilayer structures. , 2018, , .		2
78	Artificial Intelligence Goes Physical. <i>Small Science</i> , 2021, 1, 2000065.	5.8	2
79	Efficient In-Memory AES Encryption Implementation Using a General Memristive Logic: Surmounting the data movement bottleneck. <i>IEEE Nanotechnology Magazine</i> , 2022, 16, 24-C3.	0.9	2
80	Oscillation neuron based on threshold switching characteristics of niobium oxide films. , 2019, , .		1
81	Observation of conducting filament growth in nanoscale resistive memories. , 0, .		1
82	Memristors for Memory and Computing Applications. , 2017, , .		1
83	Characterizations and understanding of conducting filaments in resistive switching devices. , 2015, , .		0
84	Realization of Nanoscale Neuromorphic Memristor Array with Low Power Consumption. , 2019, , .		0
85	Associative learning circuit based on synaptic transistors with temporal dynamics. , 2021, , .		0
86	Probing Electrochemistry at the Nanoscale: In Situ TEM and STM Characterizations of Conducting Filaments in Memristive Devices. <i>Kluwer International Series in Electronic Materials: Science and Technology</i> , 2022, , 87-120.	0.3	0
87	Neuromorphic Devices and Networks Based on Memristors with Ionic Dynamics. , 2019, , 527-554.		0