Dmitri

List of Publications by Year
in descending order

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		76326	74163
123	23,003	40	75
papers	citations	h-index	g-index

129	129	129	12704
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	The missing memristor found. Nature, 2008, 453, 80-83.	27.8	9,354
2	Memristive devices for computing. Nature Nanotechnology, 2013, 8, 13-24.	31.5	3,019
3	Training and operation of an integrated neuromorphic network based on metal-oxide memristors. Nature, 2015, 521, 61-64.	27.8	2,235
4	Memristorâ"CMOS Hybrid Integrated Circuits for Reconfigurable Logic. Nano Letters, 2009, 9, 3640-3645.	9.1	628
5	Switching dynamics in titanium dioxide memristive devices. Journal of Applied Physics, 2009, 106, .	2.5	609
6	Pattern classification by memristive crossbar circuits using ex situ and in situ training. Nature Communications, 2013, 4, 2072.	12.8	501
7	CMOL FPGA: a reconfigurable architecture for hybrid digital circuits with two-terminal nanodevices. Nanotechnology, 2005, 16, 888-900.	2.6	459
8	High precision tuning of state for memristive devices by adaptable variation-tolerant algorithm. Nanotechnology, 2012, 23, 075201.	2.6	447
9	Exponential ionic drift: fast switching and low volatility ofÂthin-film memristors. Applied Physics A: Materials Science and Processing, 2009, 94, 515-519.	2.3	423
10	Coupled Ionic and Electronic Transport Model of Thinâ€Film Semiconductor Memristive Behavior. Small, 2009, 5, 1058-1063.	10.0	286
11	Implementation of multilayer perceptron network with highly uniform passive memristive crossbar circuits. Nature Communications, 2018, 9, 2331.	12.8	281
12	Flexible three-dimensional artificial synapse networks with correlated learning and trainable memory capability. Nature Communications, 2017, 8, 752.	12.8	245
13	Wafer-scale integration of two-dimensional materials in high-density memristive crossbar arrays for artificial neural networks. Nature Electronics, 2020, 3, 638-645.	26.0	222
14	3-D Memristor Crossbars for Analog and Neuromorphic Computing Applications. IEEE Transactions on Electron Devices, 2017, 64, 312-318.	3.0	175
15	Thermophoresis/diffusion as a plausible mechanism for unipolar resistive switching in metalâ€"oxideâ€"metal memristors. Applied Physics A: Materials Science and Processing, 2012, 107, 509-518.	2.3	169
16	Resistive switching and its suppression in Pt/Nb:SrTiO3 junctions. Nature Communications, 2014, 5, 3990.	12.8	167
17	Spike-timing-dependent plasticity learning of coincidence detection with passively integrated memristive circuits. Nature Communications, 2018, 9, 5311.	12.8	153
18	Hardware-intrinsic security primitives enabled by analogue state and nonlinear conductance variations in integrated memristors. Nature Electronics, 2018, 1, 197-202.	26.0	148

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19	Programmable CMOS/Memristor Threshold Logic. IEEE Nanotechnology Magazine, 2013, 12, 115-119.	2.0	142
20	Resistive switching phenomena in thin films: Materials, devices, and applications. MRS Bulletin, 2012, 37, 108-114.	3.5	137
21	Four-dimensional address topology for circuits with stacked multilayer crossbar arrays. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 20155-20158.	7.1	134
22	High-Performance Mixed-Signal Neurocomputing With Nanoscale Floating-Gate Memory Cell Arrays. IEEE Transactions on Neural Networks and Learning Systems, 2018, 29, 4782-4790.	11.3	118
23	Fast, energy-efficient, robust, and reproducible mixed-signal neuromorphic classifier based on embedded NOR flash memory technology. , 2017, , .		113
24	Nanoscale Resistive Switching in Amorphous Perovskite Oxide (aâ€‹SrTiO₃) Memristors. Advanced Functional Materials, 2014, 24, 6741-6750.	14.9	111
25	Prospects for terabit-scale nanoelectronic memories. Nanotechnology, 2005, 16, 137-148.	2.6	105
26	Roadmap on emerging hardware and technology for machine learning. Nanotechnology, 2021, 32, 012002.	2.6	104
27	The switching location of a bipolar memristor: chemical, thermal and structural mapping. Nanotechnology, 2011, 22, 254015.	2.6	101
28	CMOL: Devices, Circuits, and Architectures. , 2006, , 447-477.		100
29	4K-memristor analog-grade passive crossbar circuit. Nature Communications, 2021, 12, 5198.	12.8	97
30	Electrical transport and thermometry of electroformed titanium dioxide memristive switches. Journal of Applied Physics, 2009, 106, .	2.5	87
31	A reconfigurable architecture for hybrid CMOS/Nanodevice circuits. , 2006, , .		85
32	Current-controlled negative differential resistance due to Joule heating in TiO2. Applied Physics Letters, 2011, 99, .	3.3	78
33	Ionically-Mediated Electromechanical Hysteresis in Transition Metal Oxides. ACS Nano, 2012, 6, 7026-7033.	14.6	75
34	Defect-Tolerant Architectures for Nanoelectronic Crossbar Memories. Journal of Nanoscience and Nanotechnology, 2007, 7, 151-167.	0.9	75
35	Versatile stochastic dot product circuits based on nonvolatile memories for high performance neurocomputing and neurooptimization. Nature Communications, 2019, 10, 5113.	12.8	70
36	Smart connections. Nature, 2011, 476, 403-405.	27.8	68

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37	Donorâ€induced Performance Tuning of Amorphous SrTiO₃ Memristive Nanodevices: Multistate Resistive Switching and Mechanical Tunability. Advanced Functional Materials, 2015, 25, 3172-3182.	14.9	68
38	The area and latency tradeoffs of binary bit-parallel BCH decoders for prospective nanoelectronic memories. , 2006, , .		64
39	A multiply-add engine with monolithically integrated 3D memristor crossbar/CMOS hybrid circuit. Scientific Reports, 2017, 7, 42429.	3.3	64
40	Efficient training algorithms for neural networks based on memristive crossbar circuits. , 2015, , .		63
41	Optimized stateful material implication logic for three-dimensional data manipulation. Nano Research, 2016, 9, 3914-3923.	10.4	62
42	Hybrid CMOS/memristor circuits. , 2010, , .		57
43	Mechanical Control of Electroresistive Switching. Nano Letters, 2013, 13, 4068-4074.	9.1	55
44	Modeling and Experimental Demonstration of a Hopfield Network Analog-to-Digital Converter with Hybrid CMOS/Memristor Circuits. Frontiers in Neuroscience, 2015, 9, 488.	2.8	52
45	Reconfigurable Hybrid CMOS/Nanodevice Circuits for Image Processing. IEEE Nanotechnology Magazine, 2007, 6, 696-710.	2.0	43
46	Phenomenological modeling of memristive devices. Applied Physics A: Materials Science and Processing, 2015, 118, 779-786.	2.3	42
47	Temperature-insensitive analog vector-by-matrix multiplier based on 55 nm NOR flash memory cells. , 2017, , .		41
48	Endurance-write-speed tradeoffs in nonvolatile memories. Applied Physics A: Materials Science and Processing, 2016, 122, 1.	2.3	36
49	3D CMOS-memristor hybrid circuits. , 2012, , .		33
50	Mellow writes. Computer Architecture News, 2016, 44, 519-531.	2.5	32
51	Hybrid CMOS/nanodevice circuits for high throughput pattern matching applications. , 2011, , .		30
52	Race Logic: A hardware acceleration for dynamic programming algorithms. , 2014, , .		30
53	Lightweight Integrated Design of PUF and TRNG Security Primitives Based on eFlash Memory in 55-nm CMOS. IEEE Transactions on Electron Devices, 2020, 67, 1586-1592.	3.0	30
54	Redesigning commercial floating-gate memory for analog computing applications. , 2015, , .		29

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55	SpongeDirectory. , 2014, , .		28
56	Manhattan rule training for memristive crossbar circuit pattern classifiers. , 2015, , .		28
57	Stateful characterization of resistive switching TiO2 with electron beam induced currents. Nature Communications, 2017, 8, 1972.	12.8	28
58	Energy-Efficient Time-Domain Vector-by-Matrix Multiplier for Neurocomputing and Beyond. IEEE Transactions on Circuits and Systems II: Express Briefs, 2019, 66, 1512-1516.	3.0	28
59	Intrinsic constrains on thermally-assisted memristive switching. Applied Physics A: Materials Science and Processing, 2011, 102, 851-855.	2.3	27
60	Digital-to-analog and analog-to-digital conversion with metal oxide memristors for ultra-low power computing. , 2013, , .		27
61	Mellow Writes: Extending Lifetime in Resistive Memories through Selective Slow Write Backs. , 2016, , .		26
62	Memristive Electronic Synapses Made by Anodic Oxidation. Chemistry of Materials, 2019, 31, 8394-8401.	6.7	26
63	Improving Noise Tolerance of Mixed-Signal Neural Networks. , 2019, , .		24
64	Memristor-based perceptron classifier: Increasing complexity and coping with imperfect hardware. , 2017, , .		22
65	Applications and Techniques for Fast Machine Learning in Science. Frontiers in Big Data, 2022, 5, 787421.	2.9	20
66	High-Throughput Pattern Matching With CMOL FPGA Circuits: Case for Logic-in-Memory Computing. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2018, 26, 2759-2772.	3.1	19
67	Comprehensive Compact Phenomenological Modeling of Integrated Metal-Oxide Memristors. IEEE Nanotechnology Magazine, 2020, 19, 344-349.	2.0	19
68	Memristors for neural branch prediction. , 2013, , .		18
69	A Behavioral Compact Model for Static Characteristics of 3D NAND Flash Memory. IEEE Electron Device Letters, 2019, 40, 558-561.	3.9	18
70	Efficient Mixed-Signal Neurocomputing Via Successive Integration and Rescaling. IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 2020, 28, 823-827.	3.1	17
71	Prospects for the development of digital CMOL circuits. , 2007, , .		16
72	RX-PUF: Low Power, Dense, Reliable, and Resilient Physically Unclonable Functions Based on Analog Passive RRAM Crossbar Arrays. , 2018, , .		16

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73	An Analog Neuro-Optimizer with Adaptable Annealing Based on 64Ã—64 0T1R Crossbar Circuit. , 2019, , .		15
74	Monolithically stackable hybrid FPGA. , 2010, , .		14
75	Analog-input analog-weight dot-product operation with Ag/a-Si/Pt memristive devices. , 2012, , .		14
76	Tightening grip. Nature Materials, 2018, 17, 293-295.	27.5	14
77	An ultra-low energy internally analog, externally digital vector-matrix multiplier based on NOR flash memory technology. , 2018, , .		14
78	Boosted Race Trees for Low Energy Classification. , 2019, , .		14
79	Intrinsic Bounds for Computing Precision in Memristor-Based Vector-by-Matrix Multipliers. IEEE Nanotechnology Magazine, 2020, 19, 429-435.	2.0	13
80	3D-aCortex: an ultra-compact energy-efficient neurocomputing platform based on commercial 3D-NAND flash memories. Neuromorphic Computing and Engineering, 2021, 1, 014001.	5.9	13
81	A configurable CMOS memory platform for 3D-integrated memristors. , 2015, , .		12
82	Mixed-Signal Vector-by-Matrix Multiplier Circuits Based on 3D-NAND Memories for Neurocomputing. , 2020, , .		12
83	Energy-Efficient Moderate Precision Time-Domain Mixed-Signal Vector-by-Matrix Multiplier Exploiting 1T-1R Arrays. IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, 2020, 6, 18-26.	1.5	12
84	Hardware Security Primitive Exploiting Intrinsic Variability in Analog Behavior of 3-D NAND Flash Memory Array. IEEE Transactions on Electron Devices, 2019, 66, 2158-2164.	3.0	11
85	Utilizing NDR effect to reduce switching threshold variations in memristive devices. Applied Physics A: Materials Science and Processing, 2013, 111, 199-202.	2.3	10
86	Towards the Development of Analog Neuromorphic Chip Prototype with 2.4M Integrated Memristors. , 2019, , .		10
87	Experimental Demonstrations of Security Primitives With Nonvolatile Memories. IEEE Transactions on Electron Devices, 2019, 66, 5050-5059.	3.0	10
88	Combinatorial optimization by weight annealing in memristive hopfield networks. Scientific Reports, 2021, 11, 16383.	3.3	10
89	Race Logic: Abusing Hardware Race Conditions to Perform Useful Computation. IEEE Micro, 2015, 35, 48-57.	1.8	9
90	Low area overhead in-situ training approach for memristor-based classifier. , 2015, , .		9

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91	Maximizing stoichiometry control in reactive sputter deposition of TiO2. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 2017, 35, .	2.1	9
92	3D-DPE: A 3D high-bandwidth dot-product engine for high-performance neuromorphic computing. , 2017, , .		9
93	ChipSecure. , 2019, , .		9
94	An ionic bottle for high-speed, long-retention memristive devices. Applied Physics A: Materials Science and Processing, 2011, 102, 1033-1036.	2.3	8
95	Memory Technologies for Neural Networks. , 2015, , .		8
96	Correlation between diode polarization and resistive switching polarity in Pt/TiO₂/Pt memristive device. Physica Status Solidi - Rapid Research Letters, 2016, 10, 426-430.	2.4	8
97	3D ReRAM arrays and crossbars: Fabrication, characterization and applications. , 2017, , .		8
98	A Strong Physically Unclonable Function With >2â¸â° CRPs and <1.4% BER Using Passive ReRAM Technology. IEEE Solid-State Circuits Letters, 2020, 3, 182-185.	2.0	8
99	Analog-input analog-weight dot-product operation with Ag/a-Si/Pt memristive devices. , 2012, , .		7
100	A 4-mm2180-nm-CMOS 15-Giga-cell-updates-per-second DNA sequence alignment engine based on asynchronous race conditions. , 2017, , .		6
101	A 2T-1R Cell Array with High Dynamic Range for Mismatch-Robust and Efficient Neurocomputing. , 2020, , .		6
102	Energy efficient computation with asynchronous races. , 2016, , .		5
103	Breaking POps/J Barrier with Analog Multiplier Circuits Based on Nonvolatile Memories. , 2018, , .		5
104	aCortex: An Energy-Efficient Multipurpose Mixed-Signal Inference Accelerator. IEEE Journal on Exploratory Solid-State Computational Devices and Circuits, 2020, 6, 98-106.	1.5	5
105	Mapping of image and network processing tasks on high-throughput CMOL FPGA circuits. , 2012, , .		4
106	Predictive Analysis of 3D ReRAM-Based PUF for Securing the Internet of Things. , 2018, , .		4
107	Capacity, Fidelity, and Noise Tolerance of Associative Spatial-Temporal Memories Based on Memristive Neuromorphic Networks. Frontiers in Neuroscience, 2018, 12, 195.	2.8	4
108	A Defect-Tolerant Architecture for Nanoelectronic Resistive Memories. , 2006, , .		3

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109	3D hybrid CMOS/memristor circuits: Basic principle and prospective applications. , 2012, , .		3
110	Thermal Modeling of Resistive Switching Devices. IEEE Transactions on Electron Devices, 2013, 60, 1938-1943.	3.0	3
111	The effect of Ti and O ion implantation on the resistive switching in Pt/TiO2âˆ'x /Pt devices. Applied Physics A: Materials Science and Processing, 2015, 120, 1599-1603.	2.3	3
112	Utilizing I-V non-linearity and analog state variations in ReRAM-based security primitives. , 2017, , .		3
113	The Impact of Device Uniformity on Functionality of Analog Passively-Integrated Memristive Circuits. IEEE Transactions on Circuits and Systems I: Regular Papers, 2021, 68, 4090-4101.	5.4	3
114	Improving Machine Learning Attack Resiliency via Conductance Balancing in Memristive Strong PUFs. IEEE Transactions on Electron Devices, 2022, 69, 1816-1822.	3.0	3
115	Exponential-weight multilayer perceptron. , 2017, , .		2
116	Real Time Flutter Monitoring System for Turbomachinery. , 2004, , 799.		1
117	All-NDR crossbar logic. , 2011, , .		1
118	Mapping of image and network processing tasks on high-throughput CMOL FPGA circuits. , 2012, , .		1
119	Mixed-Signal POp/J Computing with Nonvolatile Memories. , 2018, , .		1
120	Preliminary Results Towards Reinforcement Learning with Mixed-Signal Memristive Neuromorphic Circuits. , 2019, , .		1
121	Mixed-Signal Neuromorphic Processors: Quo Vadis?. , 2019, , .		1
122	Development system for memristor circuits. , 2013, , .		0
123	Experimental and Theoretical Investigation of Minimization of Forming-Induced Variability in Resistive Memory Devices. Materials Research Society Symposia Proceedings, 2015, 1729, 53-58.	0.1	0