Manuel Le Gallo

List of Publications by Year
in descending order

71 papers	7,397 citations	201674 27 h-index	265206 42 g-index
74 all docs	74 docs citations	74 times ranked	4816 citing authors

#	Article	IF	Citations
1	Mechanism and Impact of Bipolar Current Voltage Asymmetry in Computational Phaseâ€Change Memory. Advanced Materials, 2023, 35, e2201238.	21.0	8
2	2022 roadmap on neuromorphic computing and engineering. Neuromorphic Computing and Engineering, 2022, 2, 022501.	5.9	217
3	Precision of bit slicing with in-memory computing based on analog phase-change memory crossbars. Neuromorphic Computing and Engineering, 2022, 2, 014009.	5.9	18
4	HERMES-Coreâ€"A 1.59-TOPS/mm² PCM on 14-nm CMOS In-Memory Compute Core Using 300-ps/LSB Linearized CCO-Based ADCs. IEEE Journal of Solid-State Circuits, 2022, 57, 1027-1038.	5.4	49
5	MNEMOSENE: Tile Architecture and Simulator for Memristor-based Computation-in-memory. ACM Journal on Emerging Technologies in Computing Systems, 2022, 18, 1-24.	2.3	7
6	Experimental validation of state equations and dynamic route maps for phase change memristive devices. Scientific Reports, 2022, 12, 6488.	3.3	5
7	Memristive technologies for data storage, computation, encryption, and radio-frequency communication. Science, 2022, 376, .	12.6	220
8	Optimised weight programming for analogue memory-based deep neural networks. Nature Communications, 2022, 13, .	12.8	21
9	A Multi-Memristive Unit-Cell Array With Diagonal Interconnects for In-Memory Computing. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 3522-3526.	3.0	3
10	Parallel convolutional processing using an integrated photonic tensor core. Nature, 2021, 589, 52-58.	27.8	723
11	Mushroom-Type phase change memory with projection liner: An array-level demonstration of conductance drift and noise mitigation. , 2021, , .		11
12	Robust high-dimensional memory-augmented neural networks. Nature Communications, 2021, 12, 2468.	12.8	50
13	Accurate Weight Mapping in a Multi-Memristive Synaptic Unit. , 2021, , .		1
14	Energy Efficient In-Memory Hyperdimensional Encoding for Spatio-Temporal Signal Processing. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 1725-1729.	3.0	6
15	HERMES Core â€“ A 14nm CMOS and PCM-based In-Memory Compute Core using an array of 300ps/LSB Linearized CCO-based ADCs and local digital processing. , 2021, , .		48
16	Measurement of Onset of Structural Relaxation in Meltâ€Quenched Phase Change Materials. Advanced Functional Materials, 2021, 31, 2104422.	14.9	8
17	Real-time Language Recognition using Hyperdimensional Computing on Phase-change Memory Array. , 2021, , .		2
18	A Flexible and Fast PyTorch Toolkit for Simulating Training and Inference on Analog Crossbar Arrays. , 2021, , .		48

#	Article	IF	Citations
19	Temperature sensitivity of analog in-memory computing using phase-change memory. , 2021, , .		8
20	Accurate Emulation of Memristive Crossbar Arrays for In-Memory Computing. , 2020, , .		0
21	Inâ€Memory Database Query. Advanced Intelligent Systems, 2020, 2, 2000141.	6.1	19
22	ESSOP: Efficient and Scalable Stochastic Outer Product Architecture for Deep Learning. , 2020, , .		0
23	Accurate deep neural network inference using computational phase-change memory. Nature Communications, 2020, 11, 2473.	12.8	263
24	Mixed-Precision Deep Learning Based on Computational Memory. Frontiers in Neuroscience, 2020, 14, 406.	2.8	61
25	State dependence and temporal evolution of resistance in projected phase change memory. Scientific Reports, 2020, 10, 8248.	3.3	14
26	In-memory hyperdimensional computing. Nature Electronics, 2020, 3, 327-337.	26.0	145
27	Experimental Demonstration of Supervised Learning in Spiking Neural Networks with Phase-Change Memory Synapses. Scientific Reports, 2020, 10, 8080.	3.3	48
28	Memory devices and applications for in-memory computing. Nature Nanotechnology, 2020, 15, 529-544.	31.5	968
29	Phase-change memory. , 2020, , 63-96.		3
30	An overview of phase-change memory device physics. Journal Physics D: Applied Physics, 2020, 53, 213002.	2.8	202
31	Temperature Compensation Schemes for In-Memory Computing using Phase-Change Memory. , 2020, , .		2
32	Precision of synaptic weights programmed in phase-change memory devices for deep learning inference. , 2020, , .		17
33	Computational phase-change memory: beyond von Neumann computing. Journal Physics D: Applied Physics, 2019, 52, 443002.	2.8	78
34	Computational memory-based inference and training of deep neural networks. , 2019, , .		9
35	Training Neural Networks using Memristive Devices with Nonlinear Accumulative Behavior. , 2019, , .		1
36	Deep learning acceleration based on in-memory computing. IBM Journal of Research and Development, 2019, 63, 7:1-7:16.	3.1	18

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37	Computational memory-based inference and training of deep neural networks. , 2019, , .		5
38	Applications of Computation-In-Memory Architectures based on Memristive Devices. , 2019, , .		24
39	Multi-ReRAM Synapses for Artificial Neural Network Training. , 2019, , .		8
40	In-memory computing on a photonic platform. Science Advances, 2019, 5, eaau5759.	10.3	238
41	Phase-Change Memory Models for Deep Learning Training and Inference. , 2019, , .		11
42	Phase-change memory enables energy-efficient brain-inspired computing. , 2019, , .		0
43	Mixed-precision in-memory computing. Nature Electronics, 2018, 1, 246-253.	26.0	315
44	Memristive effects in oxygenated amorphous carbon nanodevices. Nanotechnology, 2018, 29, 035201.	2.6	12
45	Impact of conductance drift on multi-PCM synaptic architectures. , 2018, , .		8
46	8-bit Precision In-Memory Multiplication with Projected Phase-Change Memory. , 2018, , .		52
47	A phase-change memory model for neuromorphic computing. Journal of Applied Physics, 2018, 124, .	2.5	96
48	Tutorial: Brain-inspired computing using phase-change memory devices. Journal of Applied Physics, 2018, 124, .	2.5	206
49	Compressed Sensing With Approximate Message Passing Using In-Memory Computing. IEEE Transactions on Electron Devices, 2018, 65, 4304-4312.	3.0	78
50	Collective Structural Relaxation in Phaseâ€€Change Memory Devices. Advanced Electronic Materials, 2018, 4, 1700627.	5.1	67
51	Neuromorphic computing with multi-memristive synapses. Nature Communications, 2018, 9, 2514.	12.8	566
52	Mixed-precision architecture based on computational memory for training deep neural networks. , 2018, , .		42
53	Monatomic phase change memory. Nature Materials, 2018, 17, 681-685.	27.5	221
54	Neuromorphic computing using non-volatile memory. Advances in Physics: X, 2017, 2, 89-124.	4.1	629

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55	Temporal correlation detection using computational phase-change memory. Nature Communications, 2017, 8, 1115.	12.8	188
56	Stochastic weight updates in phase-change memory-based synapses and their influence on artificial neural networks. , 2017, , .		14
57	Fatiguing STDP: Learning from spike-timing codes in the presence of rate codes. , 2017, , .		7
58	An efficient synaptic architecture for artificial neural networks. , 2017, , .		0
59	Compressed sensing recovery using computational memory. , 2017, , .		16
60	Supervised learning in spiking neural networks with MLC PCM synapses. , 2017, , .		8
61	The complete time/temperature dependence of I-V drift in PCM devices. , 2016, , .		6
62	Evidence for thermally assisted threshold switching behavior in nanoscale phase-change memory cells. Journal of Applied Physics, 2016, 119, .	2.5	78
63	Stochastic phase-change neurons. Nature Nanotechnology, 2016, 11, 693-699.	31.5	799
64	Detecting Correlations Using Phase-Change Neurons and Synapses. IEEE Electron Device Letters, 2016, 37, 1238-1241.	3.9	54
65	Inherent stochasticity in phase-change memory devices. , 2016, , .		16
66	High-field electrical transport in amorphous phase-change materials. Journal of Applied Physics, 2015, 118, .	2.5	25
67	Subthreshold electrical transport in amorphous phase-change materials. New Journal of Physics, 2015, 17, 093035.	2.9	44
68	A finite-element thermoelectric model for phase-change memory devices. , 2015, , .		5
69	A collective relaxation model for resistance drift in phase change memory cells. , 2015, , .		24
70	Crystal growth within a phase change memory cell. Nature Communications, 2014, 5, 4314.	12.8	199
71	BIGT control optimisation for overall loss reduction. , 2013, , .		8