Lei Deng

List of Publications by Year
in descending order

69 papers	3,292 citations	361045 20 h-index	182168 51 g-index
70 all docs	70 docs citations	70 times ranked	2263 citing authors

#	Article	IF	Citations
1	Towards artificial general intelligence with hybrid Tianjic chip architecture. Nature, 2019, 572, 106-111.	13.7	517
2	Spatio-Temporal Backpropagation for Training High-Performance Spiking Neural Networks. Frontiers in Neuroscience, 2018, 12, 331.	1.4	471
3	Model Compression and Hardware Acceleration for Neural Networks: A Comprehensive Survey. Proceedings of the IEEE, 2020, 108, 485-532.	16.4	441
4	Direct Training for Spiking Neural Networks: Faster, Larger, Better. Proceedings of the AAAI Conference on Artificial Intelligence, 2019, 33, 1311-1318.	3.6	257
5	HyGCN: A GCN Accelerator with Hybrid Architecture. , 2020, , .		160
6	Power-efficient neural network with artificial dendrites. Nature Nanotechnology, 2020, 15, 776-782.	15.6	141
7	Rethinking the performance comparison between SNNS and ANNS. Neural Networks, 2020, 121, 294-307.	3.3	131
8	GXNOR-Net: Training deep neural networks with ternary weights and activations without full-precision memory under a unified discretization framework. Neural Networks, 2018, 100, 49-58.	3.3	105
9	$L1$ -Norm Batch Normalization for Efficient Training of Deep Neural Networks. IEEE Transactions on Neural Networks and Learning Systems, 2019, 30, 2043-2051.	7.2	90
10	Tianjic: A Unified and Scalable Chip Bridging Spike-Based and Continuous Neural Computation. IEEE Journal of Solid-State Circuits, 2020, 55, 2228-2246.	3.5	78
11	Training high-performance and large-scale deep neural networks with full 8-bit integers. Neural Networks, 2020, 125, 70-82.	3.3	64
12	Comparing SNNs and RNNs on neuromorphic vision datasets: Similarities and differences. Neural Networks, 2020, 132, 108-120.	3.3	62
13	Minimum-cost control of complex networks. New Journal of Physics, 2016, 18, 013012.	1.2	53
14	Alleviating Irregularity in Graph Analytics Acceleration. , 2019, , .		53
15	DeepSniffer. , 2020, , .		51
16	Crossbar-Aware Neural Network Pruning. IEEE Access, 2018, 6, 58324-58337.	2.6	43
17	Complex Learning in Bio-plausible Memristive Networks. Scientific Reports, 2015, 5, 10684.	1.6	37
18	Characterizing and Understanding GCNs on GPU. IEEE Computer Architecture Letters, 2020, 19, 22-25.	1.0	35

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19	Brain-inspired global-local learning incorporated with neuromorphic computing. Nature Communications, 2022, 13, 65.	5.8	33
20	Energy consumption analysis for various memristive networks under different learning strategies. Physics Letters, Section A: General, Atomic and Solid State Physics, 2016, 380, 903-909.	0.9	29
21	Development of a neuromorphic computing system. , 2015, , .		28
22	Spiking Neural Network Integrated Circuits: A Review of Trends and Future Directions. , 2022, , .		28
23	Hybrid tensor decomposition in neural network compression. Neural Networks, 2020, 132, 309-320.	3.3	25
24	Memory Trojan Attack on Neural Network Accelerators. , 2019, , .		24
25	Rubik: A Hierarchical Architecture for Efficient Graph Neural Network Training. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022, 41, 936-949.	1.9	21
26	Temperature based Restricted Boltzmann Machines. Scientific Reports, 2016, 6, 19133.	1.6	20
27	Enabling Controlling Complex Networks with Local Topological Information. Scientific Reports, 2018, 8, 4593.	1.6	19
28	Compressing 3DCNNs based on tensor train decomposition. Neural Networks, 2020, 131, 215-230.	3.3	18
29	Practical Attacks on Deep Neural Networks by Memory Trojaning. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2021, 40, 1230-1243.	1.9	16
30	QTTNet: Quantized tensor train neural networks for 3D object and video recognition. Neural Networks, 2021, 141, 420-432.	3.3	16
31	DUET: Boosting Deep Neural Network Efficiency on Dual-Module Architecture. , 2020, , .		16
32	SemiMap: A Semi-Folded Convolution Mapping for Speed-Overhead Balance on Crossbars. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2020, 39, 117-130.	1.9	15
33	Nonlinear tensor train format for deep neural network compression. Neural Networks, 2021, 144, 320-333.	3.3	14
34	Correlation between the Dzyaloshinskii-Moriya interaction and spin-mixing conductance at an antiferromagnet/ferromagnet interface. Physical Review B, 2018, 98, .	1.1	13
35	A Comprehensive and Modularized Statistical Framework for Gradient Norm Equality in Deep Neural Networks. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022, 44, 13-31.	9.7	13
36	Training deep neural networks with discrete state transition. Neurocomputing, 2018, 272, 154-162.	3.5	12

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37	Comprehensive SNN Compression Using ADMM Optimization and Activity Regularization. IEEE Transactions on Neural Networks and Learning Systems, 2023, 34, 2791-2805.	7.2	12
38	Effective and Efficient Batch Normalization Using a Few Uncorrelated Data for Statistics Estimation. IEEE Transactions on Neural Networks and Learning Systems, 2021, 32, 348-362.	7.2	10
39	Target Controllability of Two-Layer Multiplex Networks Based on Network Flow Theory. IEEE Transactions on Cybernetics, 2021, 51, 2699-2711.	6.2	10
40	Core Placement Optimization for Multi-chip Many-core Neural Network Systems with Reinforcement Learning. ACM Transactions on Design Automation of Electronic Systems, 2021, 26, 1-27.	1.9	10
41	ES-ImageNet: A Million Event-Stream Classification Dataset for Spiking Neural Networks. Frontiers in Neuroscience, 2021, 15, 726582.	1.4	10
42	Fast Object Tracking on a Many-Core Neural Network Chip. Frontiers in Neuroscience, 2018, 12, 841.	1.4	9
43	Editorial: Understanding and Bridging the Gap Between Neuromorphic Computing and Machine Learning. Frontiers in Computational Neuroscience, 2021, 15, 665662.	1.2	9
44	fuseGNN. , 2020, , .		9
45	A deadlock-free physical mapping method on the many-core neural network chip. Neurocomputing, 2020, 401, 327-337.	3.5	8
46	Hierarchical Chunking of Sequential Memory on Neuromorphic Architecture with Reduced Synaptic Plasticity. Frontiers in Computational Neuroscience, 2016, 10, 136.	1.2	6
47	L0 norm constraint based external control source allocation for the minimum cost control of directed networks. ISA Transactions, 2018, 76, 88-96.	3.1	5
48	Fast Search of the Optimal Contraction Sequence in Tensor Networks. IEEE Journal on Selected Topics in Signal Processing, 2021, 15, 574-586.	7.3	5
49	Towards the minimum-cost control of target nodes in directed networks with linear dynamics. Journal of the Franklin Institute, 2018, 355, 8141-8157.	1.9	4
50	CNNWire. , 2019, , .		4
51	Containment control of directed networks with time-varying nonlinear multi-agents using minimum number of leaders. Physica A: Statistical Mechanics and Its Applications, 2019, 526, 120859.	1.2	3
52	Towards a polynomial algorithm for optimal contraction sequence of tensor networks from trees. Physical Review E, 2019, 100, 043309.	0.8	3
53	Transfer Learning in General Lensless Imaging through Scattering Media. , 2020, , .		3
54	Editorial: Spiking Neural Network Learning, Benchmarking, Programming and Executing. Frontiers in Neuroscience, 2020, 14, 276.	1.4	3

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55	Hardware-Enabled Efficient Data Processing With Tensor-Train Decomposition. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022, 41, 372-385.	1.9	3
56	Hardware Acceleration for GCNs via Bidirectional Fusion. IEEE Computer Architecture Letters, 2021, 20, 66-4.	1.0	3
57	Kronecker CP Decomposition With Fast Multiplication for Compressing RNNs. IEEE Transactions on Neural Networks and Learning Systems, 2023, 34, 2205-2219.	7.2	3
58	STPAcc: Structural TI-Based Pruning for Accelerating Distance-Related Algorithms on CPU-FPGA Platforms. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, 2022, 41, 1358-1370.	1.9	3
59	Balancing Memory Accesses for Energy-Efficient Graph Analytics Accelerators. , 2019, , .		2
60	Accelerating Spatiotemporal Supervised Training of Large-Scale Spiking Neural Networks on GPU. , 2022, , .		2
61	FPGA-based neuromorphic computing system with a scalable routing network. , 2015, , .		1
62	PLSAV: Parallel loop searching and verifying for loop closure detection. IET Intelligent Transport Systems, 2021, 15, 683-698.	1.7	1
63	Training and inference for integer-based semantic segmentation network. Neurocomputing, 2021, 454, 101-112.	3.5	1
64	Ultra low power of artificial cognitive memory for brain-like computation. , 2014, , .		0
65	A new computing rule for neuromorphic engineering. , 2015, , .		0
66	Towards a Unified Framework of Matrix Derivatives. IEEE Access, 2018, 6, 47922-47934.	2.6	0
67	KPynq: A Work-Efficient Triangle-Inequality Based K-Means on FPGA. , 2019, , .		0
68	Efficient Mapping without Deadlock on the Many-core Neural Network Chip. , 2019, , .		0
69	Efficient Processing of Sparse Tensor Decomposition via Unified Abstraction and PE-Interactive Architecture. IEEE Transactions on Computers, 2022, 71, 266-281.	2.4	0