

Abbas Rahimi

List of Publications by Year in descending order

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82
papers

2,686
citations

430754

18
h-index

395590

33
g-index

83
all docs

83
docs citations

83
times ranked

1442
citing authors

#	ARTICLE	IF	CITATIONS
1	A wearable biosensing system with in-sensor adaptive machine learning for hand gesture recognition. Nature Electronics, 2021, 4, 54-63.	13.1	317
2	A Robust and Energy-Efficient Classifier Using Brain-Inspired Hyperdimensional Computing. , 2016, , .		160
3	In-memory hyperdimensional computing. Nature Electronics, 2020, 3, 327-337.	13.1	145
4	Exploring Hyperdimensional Associative Memory. , 2017, , .		132
5	VoiceHD: Hyperdimensional Computing for Efficient Speech Recognition. , 2017, , .		104
6	Hyperdimensional biosignal processing: A case study for EMG-based hand gesture recognition. , 2016, , .		103
7	Hyperdimensional computing with 3D VRRAM in-memory kernels: Device-architecture co-design for energy-efficient, error-resilient language recognition. , 2016, , .		95
8	High-Dimensional Computing as a Nanoscalable Paradigm. IEEE Transactions on Circuits and Systems I: Regular Papers, 2017, 64, 2508-2521.	3.5	92
9	Brain-inspired computing exploiting carbon nanotube FETs and resistive RAM: Hyperdimensional computing case study. , 2018, , .		84
10	Efficient Biosignal Processing Using Hyperdimensional Computing: Network Templates for Combined Learning and Classification of ExG Signals. Proceedings of the IEEE, 2019, 107, 123-143.	16.4	82
11	An EMG Gesture Recognition System with Flexible High-Density Sensors and Brain-Inspired High-Dimensional Classifier. , 2018, , .		65
12	Classification and Recall With Binary Hyperdimensional Computing: Tradeoffs in Choice of Density and Mapping Characteristics. IEEE Transactions on Neural Networks and Learning Systems, 2018, 29, 5880-5898.	7.2	64
13	Resistive Configurable Associative Memory for Approximate Computing. , 2016, , .		59
14	One-shot Learning for iEEG Seizure Detection Using End-to-end Binary Operations: Local Binary Patterns with Hyperdimensional Computing. , 2018, , .		55
15	Online Learning and Classification of EMG-Based Gestures on a Parallel Ultra-Low Power Platform Using Hyperdimensional Computing. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 516-528.	2.7	53
16	ACAM. , 2016, , .		51
17	Robust high-dimensional memory-augmented neural networks. Nature Communications, 2021, 12, 2468.	5.8	50
18	Hyperdimensional Computing Exploiting Carbon Nanotube FETs, Resistive RAM, and Their Monolithic 3D Integration. IEEE Journal of Solid-State Circuits, 2018, 53, 3183-3196.	3.5	49

#	ARTICLE	IF	CITATIONS
19	Approximate Associative Memristive Memory for Energy-Efficient GPUs. , 2015, , .		46
20	Hyperdimensional Computing With Local Binary Patterns: One-Shot Learning of Seizure Onset and Identification of Ictogenic Brain Regions Using Short-Time iEEG Recordings. IEEE Transactions on Biomedical Engineering, 2020, 67, 601-613.	2.5	45
21	HDNA: Energy-efficient DNA sequencing using hyperdimensional computing. , 2018, , .		42
22	Laelaps: An Energy-Efficient Seizure Detection Algorithm from Long-term Human iEEG Recordings without False Alarms. , 2019, , .		39
23	Hyperdimensional Computing-based Multimodality Emotion Recognition with Physiological Signals. , 2019, , .		38
24	Hardware Optimizations of Dense Binary Hyperdimensional Computing: Rematerialization of Hypervectors, Binarized Bundling, and Combinational Associative Memory. ACM Journal on Emerging Technologies in Computing Systems, 2019, 15, 1-25.	1.8	38
25	Application-Adaptive Guardbanding to Mitigate Static and Dynamic Variability. IEEE Transactions on Computers, 2014, 63, 2160-2173.	2.4	37
26	Hyperdimensional Computing for Noninvasive Brain-Computer Interfaces: Blind and One-Shot Classification of EEG Error-Related Potentials. , 2017, , .		36
27	Variability Mitigation in Nanometer CMOS Integrated Systems: A Survey of Techniques From Circuits to Software. Proceedings of the IEEE, 2016, 104, 1410-1448.	16.4	32
28	Low-Power Sparse Hyperdimensional Encoder for Language Recognition. IEEE Design and Test, 2017, 34, 94-101.	1.1	32
29	PULP-HD. , 2018, , .		32
30	Efficient neural network acceleration on GPGPU using content addressable memory. , 2017, , .		30
31	Hyperdimensional Computing for Blind and One-Shot Classification of EEG Error-Related Potentials. Mobile Networks and Applications, 2020, 25, 1958-1969.	2.2	30
32	Axillog: Language Support for Approximate Hardware Design. , 2015, , .		29
33	An Ensemble of Hyperdimensional Classifiers: Hardware-Friendly Short-Latency Seizure Detection With Automatic iEEG Electrode Selection. IEEE Journal of Biomedical and Health Informatics, 2021, 25, 935-946.	3.9	27
34	CLIM: A Cross-Level Workload-Aware Timing Error Prediction Model for Functional Units. IEEE Transactions on Computers, 2018, 67, 771-783.	2.4	26
35	Applications of Computation-In-Memory Architectures based on Memristive Devices. , 2019, , .		24
36	Resistive CAM Acceleration for Tunable Approximate Computing. IEEE Transactions on Emerging Topics in Computing, 2019, 7, 271-280.	3.2	23

#	ARTICLE	IF	CITATIONS
37	Associative Memristive Memory for Approximate Computing in GPUs. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2016, 6, 222-234.	2.7	22
38	SLoT: A supervised learning model to predict dynamic timing errors of functional units. , 2017, , .		21
39	A Survey on Hyperdimensional Computing aka Vector Symbolic Architectures, Part I: Models and Data Transformations. ACM Computing Surveys, 2023, 55, 1-40.	16.1	21
40	Autoscaling Bloom filter: controlling trade-off between true and false positives. Neural Computing and Applications, 2020, 32, 3675-3684.	3.2	20
41	Energy-efficient mapping of biomedical applications on domain-specific accelerator under process variation. , 2014, , .		18
42	Multi-Stage Tunable Approximate Search in Resistive Associative Memory. IEEE Transactions on Multi-Scale Computing Systems, 2018, 4, 17-29.	2.5	17
43	A low-power hybrid magnetic cache architecture exploiting narrow-width values. , 2016, , .		15
44	An 826 MOPS, 210uW/MHz Unum ALU in 65 nm. , 2018, , .		13
45	Integrating event-based dynamic vision sensors with sparse hyperdimensional computing. , 2020, , .		13
46	A 5 \times 4 Standard Cell Memory-Based Configurable Hyperdimensional Computing Accelerator for Always-on Smart Sensing. IEEE Transactions on Circuits and Systems I: Regular Papers, 2021, 68, 4116-4128.	3.5	12
47	Axilox: Abstractions for Approximate Hardware Design and Reuse. IEEE Micro, 2015, 35, 16-30.	1.8	11
48	Assessing Robustness of Hyperdimensional Computing Against Errors in Associative Memory : (Invited) Tj ETQq0 0 0 rgBT /Overlock 10 T		11
49	NSF expedition on variability-aware software: Recent results and contributions. IT - Information Technology, 2015, 57, 181-198.	0.6	10
50	Task scheduling strategies to mitigate hardware variability in embedded shared memory clusters. , 2015, , .		10
51	Near-channel classifier: symbiotic communication and classification in high-dimensional space. Brain Informatics, 2021, 8, 16.	1.8	9
52	Supervised learning based model for predicting variability-induced timing errors. , 2015, , .		8
53	Ageing-Aware Compilation for GP-GPUs. Transactions on Architecture and Code Optimization, 2015, 12, 1-20.	1.6	8
54	WILD: A workload-based learning model to predict dynamic delay of functional units. , 2016, , .		8

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55	Analysis of Contraction Effort Level in EMG-Based Gesture Recognition Using Hyperdimensional Computing. , 2019, , .		7
56	Compressing Subject-specific Brain-Computer Interface Models into One Model by Superposition in Hyperdimensional Space. , 2020, , .		7
57	CIRCA-GPUs: Increasing Instruction Reuse Through Inexact Computing in GP-GPUs. IEEE Design and Test, 2016, 33, 85-92.	1.1	6
58	PULP-HD: Accelerating Brain-Inspired High-Dimensional Computing on a Parallel Ultra-Low Power Platform. , 2018, , .		6
59	Binarization Methods for Motor-Imagery Brain-Computer Interface Classification. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2020, 10, 567-577.	2.7	6
60	Evolvable Hyperdimensional Computing: Unsupervised Regeneration of Associative Memory to Recover Faulty Components. , 2020, , .		6
61	Energy Efficient In-Memory Hyperdimensional Encoding for Spatio-Temporal Signal Processing. IEEE Transactions on Circuits and Systems II: Express Briefs, 2021, 68, 1725-1729.	2.2	6
62	A Primer on Hyperdimensional Computing for iEEG Seizure Detection. Frontiers in Neurology, 2021, 12, 701791.	1.1	5
63	Explainable Deep Learning for Medical Time Series Data. Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, 2021, , 244-256.	0.2	4
64	Generalized Key-Value Memory to Flexibly Adjust Redundancy in Memory-Augmented Networks. IEEE Transactions on Neural Networks and Learning Systems, 2023, 34, 10993-10998.	7.2	4
65	An Approximation Workflow for Exploiting Data-Level Parallelism in FPGA Acceleration. , 2017, , 151-164.		3
66	Resistive Bloom Filters: From Approximate Membership to Approximate Computing with Bounded Errors. , 2016, , .		3
67	Hardware/Software Codesign for Energy Efficiency and Robustness: From Error-Tolerant Computing to Approximate Computing. Embedded Systems, 2021, , 527-543.	0.6	3
68	Hyperdimensional computing nanosystem: in-memory computing using monolithic 3D integration of RRAM and CNFET. , 2020, , 195-219.		2
69	Binary Models for Motor-Imagery Brain-Computer Interfaces: Sparse Random Projection and Binarized SVM. , 2020, , .		2
70	Real-time Language Recognition using Hyperdimensional Computing on Phase-change Memory Array. , 2021, , .		2
71	Human-centric computing â€” The case for a Hyper-Dimensional approach. , 2017, , .		1
72	Memristive-Based Associative Memory for Approximate Computational Reuse. , 2017, , 165-179.		0

#	ARTICLE	IF	CITATIONS
73	Memristive-Based Associative Memory for Error Recovery. , 2017, , 117-130.		0
74	Guest Editorial: IEEE TC Special Issue On Smart Edge Computing and IoT. IEEE Transactions on Computers, 2021, 70, 1146-1147.	2.4	0
75	Work-Unit Tolerance. , 2017, , 91-115.		0
76	Kernel-Level Tolerance. , 2017, , 61-74.		0
77	Sequence-Level Tolerance. , 2017, , 21-46.		0
78	Spatial and Temporal Memoization. , 2017, , 181-190.		0
79	Hierarchically Focused Guardbanding. , 2017, , 75-88.		0
80	Instruction-Level Tolerance. , 2017, , 11-19.		0
81	Procedure-Level Tolerance. , 2017, , 47-60.		0
82	Towards Versatile Fast Training for Wearable Interfaces in Prosthetics. Biosystems and Biorobotics, 2019, , 157-161.	0.2	0