Gert Cauwenberghs

List of Publications by Year
in descending order

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107	6,226	134610	87275
papers	citations	34 h-index	74 g-index

111	111	111	7954
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Neuromorphic Neural Interfaces. , 2022, , 1-33.		3
2	Low-power integrated circuits for wearable electrophysiology. , 2021, , 163-199.		7
3	An Optically Addressed Nanowire-Based Retinal Prosthesis With Wireless Stimulation Waveform Control and Charge Telemetering. IEEE Journal of Solid-State Circuits, 2021, 56, 3263-3273.	3.5	10
4	Markov Chain Abstractions of Electrochemical Reaction-Diffusion in Synaptic Transmission for Neuromorphic Computing. Frontiers in Neuroscience, 2021, 15, 698635.	1.4	1
5	Hierarchical Network Connectivity and Partitioning for Reconfigurable Large-Scale Neuromorphic Systems. Frontiers in Neuroscience, 2021, 15, 797654.	1.4	3
6	Hierarchical Network Partitioning for Reconfigurable Large-Scale Neuromorphic Systems. , 2021, , .		0
7	Assessing Clinicians' Reliance on Computational Aids for Acute Stroke Diagnosis. , 2020, , .		0
8	Biopotential Measurements and Electrodes. , 2020, , 65-96.		6
9	DropOut and DropConnect for Reliable Neuromorphic Inference under Energy and Bandwidth Constraints in Network Connectivity. , 2019, , .		4
10	Digitally Adaptive High-Fidelity Analog Array Signal Processing Resilient to Capacitive Multiplying DAC Inter-Stage Gain Error. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 4095-4107.	3.5	2
11	Neuromorphic Dynamical Synapses with Reconfigurable Voltage-Gated Kinetics. IEEE Transactions on Biomedical Engineering, 2019, 67, 1-1.	2.5	6
12	Electrode-Skin Impedance Characterization of In-Ear Electrophysiology Accounting for Cerumen and Electrodermal Response. , 2019, , .		12
13	Memory-Efficient Synaptic Connectivity for Spike-Timing- Dependent Plasticity. Frontiers in Neuroscience, 2019, 13, 357.	1.4	18
14	How does the presence of neural probes affect extracellular potentials?. Journal of Neural Engineering, 2019, 16, 026030.	1.8	24
15	Array atomic force microscopy for real-time multiparametric analysis. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 5872-5877.	3.3	18
16	Performance Trade-offs in Weight Quantization for Memory-Efficient Inference. , 2019, , .		1
17	A 3 mm Ã— 3 mm Fully Integrated Wireless Power Receiver and Neural Interface System-on-Chip. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 1736-1746.	2.7	34
18	Dropout and DropConnect for Reliable Neuromorphic Inference Under Communication Constraints in Network Connectivity. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2019, 9, 658-667.	2.7	4

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19	Spatial encoding in primate hippocampus during free navigation. PLoS Biology, 2019, 17, e3000546.	2.6	65
20	A Fully Integrated RF-Powered Energy-Replenishing Current-Controlled Stimulator. IEEE Transactions on Biomedical Circuits and Systems, 2019, 13, 191-202.	2.7	18
21	A 500-MHz Bandwidth 7.5-mV_{pp} Ripple Power-Amplifier Supply Modulator for RF Polar Transmitters. IEEE Journal of Solid-State Circuits, 2018, 53, 1653-1665.	3.5	10
22	A Learning Framework for Winner-Take-All Networks with Stochastic Synapses. Neural Computation, 2018, 30, 1542-1572.	1.3	9
23	Real- Time Spike Sorting for Multi-Electrode Arrays with Online Independent Component Analysis. , 2018, , .		2
24	Large-Scale Neuromorphic Spiking Array Processors: A Quest to Mimic the Brain. Frontiers in Neuroscience, 2018, 12, 891.	1.4	177
25	In Vivo Photovoltaic Performance of a Silicon Nanowire Photodiodeâ€“Based Retinal Prosthesis. , 2018, 59, 5885.		13
26	Sub-<inline-formula> <tex-math notation="LaTeX">mu </tex-math> </inline-formula>V_{rms}-Noise Sub-<inline-formula> <tex-math notation="LaTeX">mu </tex-math> </inline-formula>W/Channel ADC-Direct Neural Recording With 200-mV/ms Transient Recovery Through Predictive Digital Autoranging. IEEE Journal of Solid-State Circuits, 2018, 53, 3101-3110.	3.5	65
27	Neural and Synaptic Array Transceiver: A Brain-Inspired Computing Framework for Embedded Learning. Frontiers in Neuroscience, 2018, 12, 583.	1.4	22
28	Combining biophysical modeling and deep learning for multielectrode array neuron localization and classification. Journal of Neurophysiology, 2018, 120, 1212-1232.	0.9	33
29	A CMOS Current Steering Neurostimulation Array With Integrated DAC Calibration and Charge Balancing. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 324-335.	2.7	34
30	Capacitively coupled arrays of multiplexed flexible silicon transistors for long-term cardiac electrophysiology. Nature Biomedical Engineering, 2017, 1, .	11.6	210
31	Memristor for computing: Myth or reality?. , 2017, , .		79
32	Neuromorphic neural interfaces: from neurophysiological inspiration to biohybrid coupling with nervous systems. Journal of Neural Engineering, 2017, 14, 041002.	1.8	57
33	Design of miniaturized wireless power receivers for mm-sized implants. , 2017, , .		13
34	Silicon-Integrated High-Density Electrocortical Interfaces. Proceedings of the IEEE, 2017, 105, 11-33.	16.4	68
35	Hierarchical Address Event Routing for Reconfigurable Large-Scale Neuromorphic Systems. IEEE Transactions on Neural Networks and Learning Systems, 2017, 28, 2408-2422.	7.2	88
36	A 144-MHz Fully Integrated Resonant Regulating Rectifier With Hybrid Pulse Modulation for mm-Sized Implants. IEEE Journal of Solid-State Circuits, 2017, 52, 3043-3055.	3.5	67

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37	Energy efficiency in adaptive neural circuits. , 2017, , .		0
38	Localizing neuronal somata from Multi-Electrode Array in-vivo recordings using deep learning. , 2017, 2017, 974-977.		9
39	Assimilation of Biophysical Neuronal Dynamics in Neuromorphic VLSI. IEEE Transactions on Biomedical Circuits and Systems, 2017, 11, 1258-1270.	2.7	15
40	Wireless powering of mm-scale fully-on-chip neural interfaces. , 2017, , .		16
41	EEG-Based Quantification of Cortical Current Density and Dynamic Causal Connectivity Generalized across Subjects Performing BCI-Monitored Cognitive Tasks. Frontiers in Neuroscience, 2017, 11, 180.	1.4	16
42	Hardware-Efficient On-line Learning through Pipelined Truncated-Error Backpropagation in Binary-State Networks. Frontiers in Neuroscience, 2017, 11, 496.	1.4	7
43	Neuromorphic event-driven multi-scale synaptic connectivity and plasticity. , 2017, , .		4
44	Stochastic Synapses Enable Efficient Brain-Inspired Learning Machines. Frontiers in Neuroscience, 2016, 10, 241.	1.4	104
45	Towards high-resolution retinal prostheses with direct optical addressing and inductive telemetry. Journal of Neural Engineering, 2016, 13, 056008.	1.8	47
46	Memristor-based neural networks: Synaptic versus neuronal stochasticity. AIP Advances, 2016, 6, 111304.	0.6	32
47	Extracellular single neuron stimulation with high-density multi-electrode array. , 2016, , .		3
48	Mapping Generative Models onto a Network of Digital Spiking Neurons. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 837-854.	2.7	17
49	Energy Recycling Telemetry IC With Simultaneous 11.5 mW Power and 6.78 Mb/s Backward Data Delivery Over a Single 13.56 MHz Inductive Link. IEEE Journal of Solid-State Circuits, 2016, 51, 2664-2678.	3.5	52
50	A 6.5- $mu ext{W}$ /MHz Charge Buffer With 7-fF Input Capacitance in 65-nm CMOS for Noncontact Electropotential Sensing. IEEE Transactions on Circuits and Systems II: Express Briefs, 2016, 63, 1161-1165.	2.2	4
51	A fully integrated 144 MHz wireless-power-receiver-on-chip with an adaptive buck-boost regulating rectifier and low-loss H-Tree signal distribution. , 2016, , .		15
52	Energy efficiency limits of logic and memory. , 2016, , .		3
53	A Bidirectional Neural Interface IC With Chopper Stabilized BioADC Array and Charge Balanced Stimulator. IEEE Transactions on Biomedical Circuits and Systems, 2016, 10, 990-1002.	2.7	36
54	Synaptic sampling in hardware spiking neural networks. , 2016, , .		4

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55	Training a Probabilistic Graphical Model With Resistive Switching Electronic Synapses. IEEE Transactions on Electron Devices, 2016, 63, 5004-5011.	1.6	33
56	Membrane-dependent neuromorphic learning rule for unsupervised spike pattern detection. , 2016, , .		8
57	Micropower Mixed-Signal VLSI Independent Component Analysis for Gradient Flow Acoustic Source Separation. IEEE Transactions on Circuits and Systems I: Regular Papers, 2016, 63, 972-981.	3.5	9
58	A 1.3 mW 48 MHz 4 Channel MIMO Baseband Receiver With 65 dB Harmonic Rejection and 48.5 dB Spatial Signal Separation. IEEE Journal of Solid-State Circuits, 2016, 51, 832-844.	3.5	18
59	Event-driven contrastive divergence: neural sampling foundations. Frontiers in Neuroscience, 2015, 9, 104.	1.4	4
60	Memristors Empower Spiking Neurons With Stochasticity. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2015, 5, 242-253.	2.7	105
61	Real-time neuroimaging and cognitive monitoring using wearable dry EEG. IEEE Transactions on Biomedical Engineering, 2015, 62, 2553-2567.	2.5	536
62	Continuous wave ultrasonic doppler tonometry. , 2014, , .		2
63	Integrated Circuits and Electrode Interfaces for Noninvasive Physiological Monitoring. IEEE Transactions on Biomedical Engineering, 2014, 61, 1522-1537.	2.5	93
64	Closed-Loop Brainâ€“Machineâ€“Body Interfaces for Noninvasive Rehabilitation of Movement Disorders. Annals of Biomedical Engineering, 2014, 42, 1573-1593.	1.3	47
65	Reverse engineering the cognitive brain. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 15512-15513.	3.3	40
66	A CMOS neurostimulator with on-chip DAC calibration and charge balancing. , 2013, , .		5
67	Neuromorphic adaptations of restricted Boltzmann machines and deep belief networks. , 2013, , .		7
68	Guest Editorial Special Issue on Selected Papers From the IEEE Sensors 2011 Conference. IEEE Sensors Journal, 2013, 13, 889-889.	2.4	0
69	Event-driven contrastive divergence for spiking neuromorphic systems. Frontiers in Neuroscience, 2013, 7, 272.	1.4	141
70	Multi-channel mixed-signal noise source with applications to stochastic equalization. , 2012, , .		0
71	Live demonstration: Hierarchical Address-Event Routing architecture for reconfigurable large scale neuromorphic systems. , 2012, , .		19
72	1.1 TMACS/mW Fine-Grained Stochastic Resonant Charge-Recycling Array Processor. IEEE Sensors Journal, 2012, 12, 785-792.	2.4	20

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73	65k-neuron integrate-and-fire array transceiver with address-event reconfigurable synaptic routing. , 2012, , .		38
74	Subthreshold MOS dynamic translinear neural and synaptic conductance. , 2011, , .		5
75	Integrated ultra-high impedance front-end for non-contact biopotential sensing. , 2011, , .		8
76	Energy-efficient resonant BFSK MICS transmitter with fast-settling dual-loop adaptive frequency locking. , 2011, , .		1
77	Wireless micro-ECoG recording in primates during reach-to-grasp movements. , 2011, , .		3
78	Properties of Dry and Non-contact Electrodes for Wearable Physiological Sensors. , 2011, , .		32
79	Neuromorphic Silicon Neuron Circuits. Frontiers in Neuroscience, 2011, 5, 73.	1.4	1,004
80	Ultra-High Input Impedance, Low Noise Integrated Amplifier for Noncontact Biopotential Sensing. IEEE Journal on Emerging and Selected Topics in Circuits and Systems, 2011, 1, 526-535.	2.7	94
81	Biophysical Neural Spiking, Bursting, and Excitability Dynamics in Reconfigurable Analog VLSI. IEEE Transactions on Biomedical Circuits and Systems, 2011, 5, 420-429.	2.7	45
82	A CMOS In-Pixel CTIA High-Sensitivity Fluorescence Imager. IEEE Transactions on Biomedical Circuits and Systems, 2011, 5, 449-458.	2.7	62
83	Photon counting, censor corrections, and lifetime imaging for improved detection in two-photon microscopy. Journal of Neurophysiology, 2011, 105, 3106-3113.	0.9	35
84	Rapid determination of particle velocity from space-time images using the Radon transform. Journal of Computational Neuroscience, 2010, 29, 5-11.	0.6	129
85	Intensity histogram CMOS image sensor for adaptive optics. , 2010, , .		1
86	Micropower integrated bioamplifier and auto-ranging ADC for wireless and implantable medical instrumentation. , 2010, , .		22
87	Analog VLSI Biophysical Neurons and Synapses With Programmable Membrane Channel Kinetics. IEEE Transactions on Biomedical Circuits and Systems, 2010, 4, 139-148.	2.7	90
88	Dry-Contact and Noncontact Biopotential Electrodes: Methodological Review. IEEE Reviews in Biomedical Engineering, 2010, 3, 106-119.	13.1	931
89	A SiGe BiCMOS Eight-Channel Multidithering Sub-Microsecond Adaptive Controller. IEEE Transactions on Circuits and Systems I: Regular Papers, 2010, 57, 53-63.	3.5	3
90	Micropower CMOS Integrated Low-Noise Amplification, Filtering, and Digitization of Multimodal Neuropotentials. IEEE Transactions on Biomedical Circuits and Systems, 2009, 3, 1-10.	2.7	142

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91	Which Photodiode to Use: A Comparison of CMOS-Compatible Structures. IEEE Sensors Journal, 2009, 9, 752-760.	2.4	59
92	Wireless Micropower Instrumentation for Multimodal Acquisition of Electrical and Chemical Neural Activity. IEEE Transactions on Biomedical Circuits and Systems, 2009, 3, 388-397.	2.7	57
93	Focal-Plane Change Triggered Video Compression for Low-Power Vision Sensor Systems. PLoS ONE, 2009, 4, e6384.	1.1	1
94	A translinear SiGe BiCMOS current-controlled oscillator with 80ÂHzâ€“800ÂMHz tuning range. Analog Integrated Circuits and Signal Processing, 2008, 57, 107-115.	0.9	6
95	A Multichip Neuromorphic System for Spike-Based Visual Information Processing. Neural Computation, 2007, 19, 2281-2300.	1.3	63
96	Sub-Microwatt Analog VLSI Trainable Pattern Classifier. IEEE Journal of Solid-State Circuits, 2007, 42, 1169-1179.	3.5	103
97	480-GMACS/mW Resonant Adiabatic Mixed-Signal Processor Array for Charge-Based Pattern Recognition. IEEE Journal of Solid-State Circuits, 2007, 42, 2573-2584.	3.5	17
98	Dynamically Reconfigurable Silicon Array of Spiking Neurons With Conductance-Based Synapses. IEEE Transactions on Neural Networks, 2007, 18, 253-265.	4.8	193
99	VLSI Potentiostat Array With Oversampling Gain Modulation for Wide-Range Neurotransmitter Sensing. IEEE Transactions on Biomedical Circuits and Systems, 2007, 1, 63-72.	2.7	114
100	CMOS Camera With In-Pixel Temporal Change Detection and ADC. IEEE Journal of Solid-State Circuits, 2007, 42, 2187-2196.	3.5	68
101	Robust Speech Feature Extraction by Growth Transformation in Reproducing Kernel Hilbert Space. IEEE Transactions on Audio Speech and Language Processing, 2007, 15, 1842-1849.	3.8	9
102	VLSI Implementation of Fuzzy Adaptive Resonance and Learning Vector Quantization. Analog Integrated Circuits and Signal Processing, 2002, 30, 149-157.	0.9	9
103	Probabilistic synaptic weighting in a reconfigurable network of VLSI integrate-and-fire neurons. Neural Networks, 2001, 14, 781-793.	3.3	166
104	Synthesis of Log-Domain Filters from First-Order Building Blocks. Analog Integrated Circuits and Signal Processing, 2000, 22, 177-186.	0.9	19
105	Learning on Silicon: Editorial. Analog Integrated Circuits and Signal Processing, 1999, 18, 113-116.	0.9	1
106	A Nonlinear Noise-Shaping Delta-Sigma Modulator with On-Chip Reinforcement Learning*. Analog Integrated Circuits and Signal Processing, 1999, 18, 289-299.	0.9	2
107	Analog VLSI Stochastic Perturbative Learning Architectures. Analog Integrated Circuits and Signal Processing, 1997, 13, 195-209.	0.9	33