Duygu Kuzum

List of Publications by Year
in descending order

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48 papers	6,341 citations	185998 28 h-index	253896 43 g-index
51 all docs	51 docs citations	51 times ranked	7399 citing authors

#	Article	IF	Citations
1	Nanoelectronic Programmable Synapses Based on Phase Change Materials for Brain-Inspired Computing. Nano Letters, 2012, 12, 2179-2186.	4.5	1,036
2	Synaptic electronics: materials, devices and applications. Nanotechnology, 2013, 24, 382001.	1.3	1,012
3	An Electronic Synapse Device Based on Metal Oxide Resistive Switching Memory for Neuromorphic Computation. IEEE Transactions on Electron Devices, 2011, 58, 2729-2737.	1.6	731
4	Artificial optic-neural synapse for colored and color-mixed pattern recognition. Nature Communications, 2018, 9, 5106.	5.8	462
5	Transparent and flexible low noise graphene electrodes for simultaneous electrophysiology and neuroimaging. Nature Communications, 2014, 5, 5259.	5.8	448
6	Bioresorbable silicon electronics for transient spatiotemporal mapping of electrical activity fromÂthe cerebral cortex. Nature Materials, 2016, 15, 782-791.	13.3	400
7	On the Correct Extraction of Interface Trap Density of MOS Devices With High-Mobility Semiconductor Substrates. IEEE Transactions on Electron Devices, 2008, 55, 547-556.	1.6	339
8	Transformation of Cortex-wide Emergent Properties during Motor Learning. Neuron, 2017, 94, 880-890.e8.	3.8	211
9	Brain-like associative learning using a nanoscale non-volatile phase change synaptic device array. Frontiers in Neuroscience, 2014, 8, 205.	1.4	176
10	Ge-Interface Engineering With Ozone Oxidation for Low Interface-State Density. IEEE Electron Device Letters, 2008, 29, 328-330.	2.2	172
11	Flexible Neural Electrode Array Based-on Porous Graphene for Cortical Microstimulation and Sensing. Scientific Reports, 2016, 6, 33526.	1.6	144
12	Deep 2-photon imaging and artifact-free optogenetics through transparent graphene microelectrode arrays. Nature Communications, 2018, 9, 2035.	5.8	143
13	Ge (100) and (111) N- and P-FETs With High Mobility and Low-T Mobility Characterization. IEEE Transactions on Electron Devices, 2009, 56, 648-655.	1.6	98
14	Neuroinspired unsupervised learning and pruning with subquantum CBRAM arrays. Nature Communications, 2018, 9, 5312.	5.8	82
15	Low-Energy Robust Neuromorphic Computation Using Synaptic Devices. IEEE Transactions on Electron Devices, 2012, 59, 3489-3494.	1.6	76
16	Ultralow Impedance Graphene Microelectrodes with High Optical Transparency for Simultaneous Deep Twoâ€Photon Imaging in Transgenic Mice. Advanced Functional Materials, 2018, 28, 1800002.	7.8	76
17	Energy-efficient Mott activation neuron for full-hardware implementation of neural networks. Nature Nanotechnology, 2021, 16, 680-687.	15.6	73
18	The Effect of Donor/Acceptor Nature of Interface Traps on Ge MOSFET Characteristics. IEEE Transactions on Electron Devices, 2011, 58, 1015-1022.	1.6	57

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19	A Compact Closed-Loop Optogenetics System Based on Artifact-Free Transparent Graphene Electrodes. Frontiers in Neuroscience, 2018, 12, 132.	1.4	53
20	Multimodal neural recordings with Neuro-FITM uncover diverse patterns of corticalâ€“hippocampal interactions. Nature Neuroscience, 2021, 24, 886-896.	7.1	47
21	Chemical Bonding, Interfaces, and Defects in Hafnium Oxideâ•Germanium Oxynitride Gate Stacks on Ge(100). Journal of the Electrochemical Society, 2008, 155, G304.	1.3	44
22	Roadmap on material-function mapping for photonic-electronic hybrid neural networks. APL Materials, 2019, 7, .	2.2	42
23	Characteristics of surface states and charge neutrality level in Ge. Applied Physics Letters, 2009, 95, .	1.5	38
24	Silicon Germanium CMOS Optoelectronic Switching Device: Bringing Light to Latch. IEEE Transactions on Electron Devices, 2007, 54, 3252-3259.	1.6	35
25	Graphene-based neurotechnologies for advanced neural interfaces. Current Opinion in Biomedical Engineering, 2018, 6, 138-147.	1.8	35
26	The Impact of Resistance Drift of Phase Change Memory (PCM) Synaptic Devices on Artificial Neural Network Performance. IEEE Electron Device Letters, 2019, 40, 1325-1328.	2.2	33
27	Drift-Enhanced Unsupervised Learning of Handwritten Digits in Spiking Neural Network With PCM Synapses. IEEE Electron Device Letters, 2018, 39, 1768-1771.	2.2	32
28	High performance germanium N+â•P and P+â•N junction diodes formed at low Temperature (â©½380Â°C) using metal-induced dopant activation. Applied Physics Letters, 2008, 93, .	1.5	29
29	A Soft-Pruning Method Applied During Training of Spiking Neural Networks for In-memory Computing Applications. Frontiers in Neuroscience, 2019, 13, 405.	1.4	29
30	SiGe optoelectronic metal-oxide semiconductor field-effect transistor. Optics Letters, 2007, 32, 2022.	1.7	25
31	Performance Prospects of Deeply Scaled Spin-Transfer Torque Magnetic Random-Access Memory for In-Memory Computing. IEEE Electron Device Letters, 2020, 41, 1126-1129.	2.2	23
32	N-Channel Germanium MOSFET Fabricated Below 360 <formula formulatype="inline"><tex Notation="TeX">$^{ circ}hbox{C}$</tex></formula> by Cobalt-Induced Dopant Activation for Monolithic Three-Dimensional-ICs. IEEE Electron Device Letters, 2011, 32, 234-236.	2.2	22
33	Low Temperature Germanium Growth on Silicon Oxide Using Boron Seed Layer and In Situ Dopant Activation. Journal of the Electrochemical Society, 2010, 157, H371.	1.3	19
34	Evaluation of Durability of Transparent Graphene Electrodes Fabricated on Different Flexible Substrates for ChronicIn VivoExperiments. IEEE Transactions on Biomedical Engineering, 2020, 67, 3203-3210.	2.5	13
35	Investigation of Trap Spacing for the Amorphous State of Phase-Change Memory Devices. IEEE Transactions on Electron Devices, 2011, 58, 4370-4376.	1.6	12
36	High-Density Porous Graphene Arrays Enable Detection and Analysis of Propagating Cortical Waves and Spirals. Scientific Reports, 2018, 8, 17089.	1.6	12

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37	Computational analysis of network activity and spatial reach of sharp wave-ripples. PLoS ONE, 2017, 12, e0184542.	1.1	9
38	Spatiotemporal evolution of focal epileptiform activity from surface and laminar field recordings in cat neocortex. Journal of Neurophysiology, 2018, 119, 2068-2081.	0.9	9
39	Effect of interfacial oxide on Ge MOSCAP and N-MOSFET characteristics. Microelectronic Engineering, 2011, 88, 3428-3431.	1.1	8
40	Adaptive Quantization as a Device-Algorithm Co-Design Approach to Improve the Performance of In-Memory Unsupervised Learning With SNNs. IEEE Transactions on Electron Devices, 2019, 66, 1722-1728.	1.6	8
41	Decoding of cortex-wide brain activity from local recordings of neural potentials. Journal of Neural Engineering, 2021, 18, 066009.	1.8	7
42	Hippocampal-Cortical Memory Trace Transfer and Reactivation Through Cell-Specific Stimulus and Spontaneous Background Noise. Frontiers in Computational Neuroscience, 2019, 13, 67.	1.2	6
43	A Neuromorphic Brain Interface Based on RRAM Crossbar Arrays for High Throughput Real-Time Spike Sorting. IEEE Transactions on Electron Devices, 2022, 69, 2137-2144.	1.6	6
44	Decoding ECoG High Gamma Power from Cellular Calcium Response using Transparent Graphene Microelectrodes. , 2019, , .		4
45	A flexible head fixation system for optical imaging and electrophysiology in awake mice. , 2020, , .		3
46	3D Expandable Microwire Electrode Arrays Made of Programmable Shape Memory Materials. , 2018, , .		1
47	Drift-enhanced Unsupervised Learning with PCM Synapses. , 2018, , .		0
48	Multimodal Monitoring of Human Brain Organoids Implanted in Mice Using Transparent Microelectrodes. , 2021, , .		0