Luca Berdondini

List of Publications by Year
in descending order

88 papers	3,245 citations	159585 30 h-index	168389 53 g-index
92 all docs	92 docs citations	92 times ranked	3980 citing authors

#	Article	IF	Citations
1	Integrated Micro-Devices for a Lab-in-Organoid Technology Platform: Current Status and Future Perspectives. Frontiers in Neuroscience, 2022, 16, 842265.	2.8	2
2	Electrophysiology Read-Out Tools for Brain-on-Chip Biotechnology. Micromachines, 2021, 12, 124.	2.9	26
3	Modeling a population of retinal ganglion cells with restricted Boltzmann machines. Scientific Reports, 2020, 10, 16549.	3.3	3
4	Surfaceâ€Functionalized Selfâ€Standing Microdevices Exhibit Predictive Localization and Seamless Integration in 3D Neural Spheroids. Advanced Biology, 2020, 4, 2000114.	3.0	7
5	A Closed-Loop System Processing High-Density Electrical Recordings and Visual Stimuli to Study Retinal Circuits Properties. , 2019, , .		1
6	Investigating the Effects of Mechanical Stimulation on Retinal Ganglion Cell Spontaneous Spiking Activity. Frontiers in Neuroscience, 2019, 13, 1023.	2.8	12
7	Active High-Density Electrode Arrays: Technology and Applications in Neuronal Cell Cultures. Advances in Neurobiology, 2019, 22, 253-273.	1.8	5
8	A 0.34 mm² 1 Gb/s Non-Coherent UWB Receiver Architecture With Pulse Enhancement and Double PLL Clock/Data Packet Recovery. IEEE Transactions on Circuits and Systems I: Regular Papers, 2019, 66, 2735-2748.	5.4	5
9	$mu ext{Radio}$: First Characterization Results Towards a $100 mumathrm{m}imes 100 mu mathrm{m}$ Monolithic Radio with Bio-Electrical Interface. , 2019, , .		2
10	Astrocytes and Circadian Rhythms: An Emerging Astrocyteâ€“Neuron Synergy in the Timekeeping System. Methods in Molecular Biology, 2019, 1938, 131-154.	0.9	12
11	SiNAPS: An implantable active pixel sensor CMOS-probe for simultaneous large-scale neural recordings. Biosensors and Bioelectronics, 2019, 126, 355-364.	10.1	110
12	A 5 pJ/pulse at 1-Gpps Pulsed Transmitter Based on Asynchronous Logic Masterâ€“Slave PLL Synthesis. IEEE Transactions on Circuits and Systems I: Regular Papers, 2018, 65, 1096-1109.	5.4	20
13	A Synchronous Neural Recording Platform for Multiple High-Resolution CMOS Probes and Passive Electrode Arrays. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 532-542.	4.0	19
14	State-dependent representation of stimulus-evoked activity in high-density recordings of neural cultures. Scientific Reports, 2018, 8, 5578.	3.3	15
15	Biofunctionalized 3D Nanopillar Arrays Fostering Cell Guidance and Promoting Synapse Stability and Neuronal Activity in Networks. ACS Applied Materials & Interfaces, 2018, 10, 15207-15215.	8.0	32
16	Fabrication of Multielectrode Arrays for Neurobiology Applications. Methods in Molecular Biology, 2018, 1771, 147-157.	0.9	4
17	Exploiting All Programmable SoCs in Neural Signal Analysis: A Closed-Loop Control for Large-Scale CMOS Multielectrode Arrays. IEEE Transactions on Biomedical Circuits and Systems, 2018, 12, 839-850.	4.0	17
18	A 1 Gbps UWB OOK Receiver with Double PLL All-Digital CDR and Data Packet Re-Synchronizer. , 2018, , .		2

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19	Unsupervised Spike Sorting for Large-Scale, High-Density Multielectrode Arrays. Cell Reports, 2017, 18, 2521-2532.	6.4	93
20	Astrocyte deletion of Bmal1 alters daily locomotor activity and cognitive functions via GABA signalling. Nature Communications, 2017, 8, 14336.	12.8	162
21	Selective Targeting of Neurons with Inorganic Nanoparticles: Revealing the Crucial Role of Nanoparticle Surface Charge. ACS Nano, 2017, 11, 6630-6640.	14.6	85
22	Intracellular and Extracellular Recording of Spontaneous Action Potentials in Mammalian Neurons and Cardiac Cells with 3D Plasmonic Nanoelectrodes. Nano Letters, 2017, 17, 3932-3939.	9.1	167
23	High-resolution bioelectrical imaging of Aî²-induced network dysfunction on CMOS-MEAs for neurotoxicity and rescue studies. Scientific Reports, 2017, 7, 2460.	3.3	34
24	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 3. BMC Neuroscience, 2017, 18, .	1.9	7
25	A closed-loop system for neural networks analysis through high density MEAs. , 2017, , .		0
26	Developmental excitatory-to-inhibitory GABA-polarity switch is disrupted in 22q11.2 deletion syndrome: a potential target for clinical therapeutics. Scientific Reports, 2017, 7, 15752.	3.3	51
27	On-FPGA real-time processing of biological signals from high-density MEAs: a design space exploration. , 2017, , .		5
28	A 1 Gpps asynchronous logic OOK IR-UWB transmitter based on master-slave PLL synthesis. , 2017, , .		3
29	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 2. BMC Neuroscience, 2017, 18, .	1.9	7
30	Recurrently connected and localized neuronal communities initiate coordinated spontaneous activity in neuronal networks. PLoS Computational Biology, 2017, 13, e1005672.	3.2	51
31	Rank Order Coding: a Retinal Information Decoding Strategy Revealed by Large-Scale Multielectrode Array Retinal Recordings. ENeuro, 2016, 3, ENEURO.0134-15.2016.	1.9	36
32	Electrical Responses and Spontaneous Activity of Human iPS-Derived Neuronal Networks Characterized for 3-month Culture with 4096-Electrode Arrays. Frontiers in Neuroscience, 2016, 10, 121.	2.8	91
33	Specific Neuron Placement on Gold and Silicon Nitride-Patterned Substrates through a Two-Step Functionalization Method. Langmuir, 2016, 32, 6319-6327.	3.5	17
34	Investigating cell culture dynamics combining high density recordings with dimensional reduction techniques. , 2015, 2015, 3759-62.		2
35	Spatially, Temporally, and Quantitatively Controlled Delivery of Broad Range of Molecules into Selected Cells through Plasmonic Nanotubes. Advanced Materials, 2015, 27, 7145-7149.	21.0	93
36	Investigating intrinsic and evoked activities in cultured neuronal networks by dimensional reduction techniques and high-density MEAs. BMC Neuroscience, 2015, 16, .	1.9	0

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37	A scalable high performance client/server framework to manage and analyze high dimensional datasets recorded by 4096 CMOS-MEAs. , 2015, , .		1
38	Spike Detection for Large Neural Populations Using High Density Multielectrode Arrays. Frontiers in Neuroinformatics, 2015, 9, 28.	2.5	48
39	A computational model of cell culture dynamics: the role of connectivity and synaptic receptors in the appearance of synchronized bursting events. BMC Neuroscience, 2015, 16, .	1.9	1
40	Sloppiness in Spontaneously Active Neuronal Networks. Journal of Neuroscience, 2015, 35, 8480-8492.	3.6	60
41	A 512-channels, whole array readout, CMOS implantable probe for acute recordings from the brain. , 2015, 2015, 877-80.		14
42	High-density MEAs reveal lognormal firing patterns in neuronal networks for short and long term recordings. , 2015, , .		2
43	Multifunctional biosensing with three-dimensional plasmonic nanoantennas. Proceedings of SPIE, 2015, , .	0.8	1
44	High-density MEA recordings unveil the dynamics of bursting events in Cell Cultures. , 2015, 2015, 3763-6.		9
45	Bridging the gap in connectomic studies: A particle filtering framework for estimating structural connectivity at network scale. Medical Image Analysis, 2015, 21, 1-14.	11.6	3
46	3D plasmonic nanoantennas integrated with MEA biosensors. Nanoscale, 2015, 7, 3703-3711.	5.6	76
47	Role of major burst leaders in modular hippocampal networks. , 2015, , .		0
48	Microelectronics, bioinformatics and neurocomputation for massive neuronal recordings in brain circuits with large scale multielectrode array probes. Brain Research Bulletin, 2015, 119, 118-126.	3.0	28
49	Emergence of Bursting Activity in Connected Neuronal Sub-Populations. PLoS ONE, 2014, 9, e107400.	2.5	62
50	Functional connectivity estimation over large networks at cellular resolution based on electrophysiological recordings and structural prior. Frontiers in Neuroanatomy, 2014, 8, 137.	1.7	32
51	Dominant Î²-catenin mutations cause intellectual disability with recognizable syndromic features. Journal of Clinical Investigation, 2014, 124, 1468-1482.	8.2	110
52	3D plasmonic hollow nanoantennas as tools for neuroscience applications. , 2014, , .		0
53	Following the ontogeny of retinal waves: panâ€retinal recordings of population dynamics in the neonatal mouse. Journal of Physiology, 2014, 592, 1545-1563.	2.9	109
54	Novel 3D plasmonic nano-electrodes for cellular investigations and neural interfaces. Proceedings of SPIE, 2014, , .	0.8	2

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55	Integration of microstructured scaffolds, neurons, and multielectrode arrays. Progress in Brain Research, 2014, 214, 415-442.	1.4	9
56	A New Assay to Quantify the Connect-Ability of Neurons and the Neurite Extensions. Biophysical Journal, 2014, 106, 793a.	0.5	0
57	Brain Function: Novel Technologies Driving Novel Understanding. , 2014, , 299-334.		6
58	Homeostasis in large networks of neurons through the Ising model - do higher order interactions matter?. BMC Neuroscience, 2013, 14, .	1.9	1
59	Nano-volume drop patterning for rapid on-chip neuronal connect-ability assays. Lab on A Chip, 2013, 13, 4419.	6.0	22
60	Electrical coupling of mammalian neurons to microelectrodes with 3D nanoprotrusions. Microelectronic Engineering, 2013, 111, 384-390.	2.4	24
61	Neuronal network structural connectivity estimation by probabilistic features and graph heat kernels. , 2013, , .		2
62	A joint structural and functional analysis of in-vitro neuronal networks. , 2012, , .		3
63	Beam induced deposition of 3D electrodes to improve coupling to cells. Microelectronic Engineering, 2012, 97, 365-368.	2.4	10
64	Emergent Functional Properties of Neuronal Networks with Controlled Topology. PLoS ONE, 2012, 7, e34648.	2.5	102
65	Large-scale, high-resolution electrophysiological imaging of field potentials in brain slices with microelectronic multielectrode arrays. Frontiers in Neural Circuits, 2012, 6, 80.	2.8	85
66	Multiscale functional connectivity estimation on low-density neuronal cultures recorded by high-density CMOS Micro Electrode Arrays. Journal of Neuroscience Methods, 2012, 207, 161-171.	2.5	60
67	What can MaxEnt reveal about high-density recordings and what can high-density recordings reveal about MaxEnt?. BMC Neuroscience, 2011, 12, .	1.9	0
68	Analysis of simultaneous multielectrode recordings with 4,096 channels: changing dynamics of spontaneous activity in the developing retina. BMC Neuroscience, 2011, 12, .	1.9	1
69	Combined optical tweezers and laser dissector for controlled ablation of functional connections in neural networks. Journal of Biomedical Optics, 2011, 16, 051306.	2.6	24
70	Combining Optical Tweezers, Laser Microdissectors and Multichannel Electrophysiology for the Non-Invasive Tracing and Manipulation of Neural Activity on Single Cell and Network Level. Biophysical Journal, 2010, 98, 138a.	0.5	0
71	Experimental investigation on spontaneously active hippocampal cultures recorded by means of high-density MEAs: analysis of the spatial resolution effects. Frontiers in Neuroengineering, 2010, 3, 4.	4.8	34
72	Tracking burst patterns in hippocampal cultures with high-density CMOS-MEAs. Journal of Neural Engineering, 2010, 7, 056001.	3.5	57

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73	Realâ€time signal processing for highâ€density microelectrode array systems. International Journal of Adaptive Control and Signal Processing, 2009, 23, 983-998.	4.1	10
74	Extracellular recordings from locally dense microelectrode arrays coupled to dissociated cortical cultures. Journal of Neuroscience Methods, 2009, 177, 386-396.	2.5	62
75	Active pixel sensor array for high spatio-temporal resolution electrophysiological recordings from single cell to large scale neuronal networks. Lab on A Chip, 2009, 9, 2644.	6.0	300
76	Large-Scale, High-Resolution Data Acquisition System for Extracellular Recording of Electrophysiological Activity. IEEE Transactions on Biomedical Engineering, 2008, 55, 2064-2073.	4.2	117
77	High-resolution MEA platform for in-vitro electrogenic cell networks imaging. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 6086-9.	0.5	4
78	NETWORK DYNAMICS AND SYNCHRONOUS ACTIVITY IN CULTURED CORTICAL NEURONS. International Journal of Neural Systems, 2007, 17, 87-103.	5.2	167
79	Addressable Nanoelectrode Membrane Arrays:Â Fabrication and Steady-State Behavior. Analytical Chemistry, 2007, 79, 1474-1484.	6.5	48
80	A microelectrode array (MEA) integrated with clustering structures for investigating in vitro neurodynamics in confined interconnected sub-populations of neurons. Sensors and Actuators B: Chemical, 2006, 114, 530-541.	7.8	91
81	High-density electrode array for imaging in vitro electrophysiological activity. Biosensors and Bioelectronics, 2005, 21, 167-174.	10.1	109
82	Cell-compatible array of three-dimensional tip electrodes for the detection of nitric oxide release. Biosensors and Bioelectronics, 2005, 20, 1566-1572.	10.1	42
83	Generic technological platform for microfabricating silicon nitride micro- and nanopipette arrays. Journal of Micromechanics and Microengineering, 2005, 15, 2372-2378.	2.6	16
84	Towards an embodied in vitro electrophysiology: the NeuroBIT project. Neurocomputing, 2004, 58-60, 1065-1072.	5.9	32
85	Development of an electroless post-processing technique for depositing gold as electrode material on CMOS devices. Sensors and Actuators B: Chemical, 2004, 99, 505-510.	7.8	26
86	Integrated Microanalytical System Coupling Permeation Liquid Membrane and Voltammetry for Trace Metal Speciation. Technical Description and Optimization. Electroanalysis, 2004, 16, 811-820.	2.9	12
87	Voltammetric Microsystem for Trace Elements Monitoring. Analytical Letters, 2003, 36, 1835-1849.	1.8	4
88	Fabrication of nano-interdigitated electrodes. , 2003, , .		0