Olivier Marre

List of Publications by Year
in descending order

56 papers	2,768 citations	218677 26 h-index	214800 47 g-index
76 all docs	76 docs citations	76 times ranked	2656 citing authors

#	Article	IF	Citations
1	A spike sorting toolbox for up to thousands of electrodes validated with ground truth recordings in vitro and in vivo. ELife, 2018, 7, .	6.0	251
2	Searching for Collective Behavior in a Large Network of Sensory Neurons. PLoS Computational Biology, 2014, 10, e1003408.	3.2	190
3	Predictive information in a sensory population. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 6908-6913.	7.1	174
4	Thermodynamics and signatures of criticality in a network of neurons. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 11508-11513.	7.1	169
5	Targeting Channelrhodopsin-2 to ON-bipolar Cells With Vitreally Administered AAV Restores ON and OFF Visual Responses in Blind Mice. Molecular Therapy, 2015, 23, 7-16.	8.2	166
6	Mapping a Complete Neural Population in the Retina. Journal of Neuroscience, 2012, 32, 14859-14873.	3.6	140
7	Redâ€shifted channelrhodopsin stimulation restores light responses in blind mice, macaque retina, and human retina. EMBO Molecular Medicine, 2016, 8, 1248-1264.	6.9	139
8	A New Promoter Allows Optogenetic Vision Restoration with Enhanced Sensitivity in Macaque Retina. Molecular Therapy, 2017, 25, 2546-2560.	8.2	131
9	Toward a unified theory of efficient, predictive, and sparse coding. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 186-191.	7.1	124
10	Prediction of Spatiotemporal Patterns of Neural Activity from Pairwise Correlations. Physical Review Letters, 2009, 102, 138101.	7.8	107
11	The simplest maximum entropy model for collective behavior in a neural network. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P03011.	2.3	89
12	Network-State Modulation of Power-Law Frequency-Scaling in Visual Cortical Neurons. PLoS Computational Biology, 2009, 5, e1000519.	3.2	70
13	Optogenetic therapy: high spatiotemporal resolution and pattern discrimination compatible with vision restoration in non-human primates. Communications Biology, 2021, 4, 125.	4.4	65
14	Dissecting the Contribution of Individual Receptor Subunits to the Enhancement of N-methyl-d-Aspartate Currents by Dopamine D1 Receptor Activation in Striatum. Frontiers in Systems Neuroscience, 2011, 5, 4.	2.5	65
15	Dynamical Criticality in the Collective Activity of a Population of Retinal Neurons. Physical Review Letters, 2015, 114, 078105.	7.8	57
16	Recent progress in multi-electrode spike sorting methods. Journal of Physiology (Paris), 2016, 110, 327-335.	2.1	50
17	High Accuracy Decoding of Dynamical Motion from a Large Retinal Population. PLoS Computational Biology, 2015, 11, e1004304.	3.2	49
18	Multiplexed computations in retinal ganglion cells of a single type. Nature Communications, 2017, 8, 1964.	12.8	47

#	Article	IF	Citations
19	Artificial retina: the multichannel processing of the mammalian retina achieved with a neuromorphic asynchronous light acquisition device. Journal of Neural Engineering, 2012, 9, 066004.	3.5	46
20	Neural stimulation for visual rehabilitation: Advances and challenges. Journal of Physiology (Paris), 2013, 107, 421-431.	2.1	45
21	Animation of natural scene by virtual eye-movements evokes high precision and low noise in V1 neurons. Frontiers in Neural Circuits, 2013, 7, 206.	2.8	41
22	Gibbs distribution analysis of temporal correlations structure in retina ganglion cells. Journal of Physiology (Paris), 2012, 106, 120-127.	2.1	38
23	Alert Response to Motion Onset in the Retina. Journal of Neuroscience, 2013, 33, 120-132.	3.6	38
24	Hidden Complexity of Synaptic Receptive Fields in Cat V1. Journal of Neuroscience, 2014, 34, 5515-5528.	3.6	36
25	What Can Neuromorphic Event-Driven Precise Timing Add to Spike-Based Pattern Recognition?. Neural Computation, 2015, 27, 561-593.	2.2	35
26	Nonlinear decoding of a complex movie from the mammalian retina. PLoS Computational Biology, 2018, 14, e1006057.	3.2	35
27	A Re-Examination of Hebbian-Covariance Rules and Spike Timing-Dependent Plasticity in Cat Visual Cortex in vivo. Frontiers in Synaptic Neuroscience, 2010, 2, 147.	2.5	32
28	Learning Quadratic Receptive Fields from Neural Responses to Natural Stimuli. Neural Computation, 2013, 25, 1661-1692.	2.2	31
29	Reliable Recall of Spontaneous Activity Patterns in Cortical Networks. Journal of Neuroscience, 2009, 29, 14596-14606.	3.6	30
30	Maximum-entropy models reveal the excitatory and inhibitory correlation structures in cortical neuronal activity. Physical Review E, 2018, 98, 012402.	2.1	29
31	Error-Robust Modes of the Retinal Population Code. PLoS Computational Biology, 2016, 12, e1005148.	3.2	24
32	Spatio-temporal spike train analysis for large scale networks using the maximum entropy principle and Monte Carlo method. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P03006.	2.3	23
33	Towards optogenetic vision restoration with high resolution. PLoS Computational Biology, 2020, 16, e1007857.	3.2	20
34	A Tractable Method for Describing Complex Couplings between Neurons and Population Rate. ENeuro, 2016, 3, ENEURO.0160-15.2016.	1.9	18
35	Separating intrinsic interactions from extrinsic correlations in a network of sensory neurons. Physical Review E, 2018, 98, .	2.1	15
36	Modeling the Correlated Activity of Neural Populations: A Review. Neural Computation, 2019, 31, 233-269.	2.2	12

#	Article	IF	Citations
37	A Simple Model for Low Variability in Neural Spike Trains. Neural Computation, 2018, 30, 3009-3036.	2.2	11
38	Blindfold learning of an accurate neural metric. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 3267-3272.	7.1	9
39	A biophysical model explains the spontaneous bursting behavior in the developing retina. Scientific Reports, 2019, 9, 1859.	3.3	9
40	A simple method for estimating the entropy of neural activity. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P03015.	2.3	8
41	Predicting synchronous firing of large neural populations from sequential recordings. PLoS Computational Biology, 2021, 17, e1008501.	3.2	8
42	Multiscale Functional Imaging in V1 and Cortical Correlates of Apparent Motion. , 2009, , 73-93.		7
43	Pairwise Ising Model Analysis of Human Cortical Neuron Recordings. Lecture Notes in Computer Science, 2017, , 257-264.	1.3	5
44	Inferring the function performed by a recurrent neural network. PLoS ONE, 2021, 16, e0248940.	2.5	4
45	Closed-Loop Estimation of Retinal Network Sensitivity by Local Empirical Linearization. ENeuro, 2017, 4, ENEURO.0166-17.2017.	1.9	4
46	Spatial organization of evoked neuronal dynamics in 2D recurrent networks, with or without structured stimulation. BMC Neuroscience, 2009, 10, .	1.9	1
47	Correction: Chen et al., Alert Response to Motion Onset in the Retina. Journal of Neuroscience, 2013, 33, 2728-2728.	3.6	0
48	Exploring the Neural Manifold. Physics Magazine, 2013, 6, .	0.1	0
49	26th Annual Computational Neuroscience Meeting (CNS*2017): Part 1. BMC Neuroscience, 2017, 18, .	1.9	0
50	Analysis of retinal and cortical response to electrical stimulation by subretinal implant in rodent. Acta Ophthalmologica, 2013, 91, 0-0.	1.1	0
51	Towards optogenetic vision restoration with high resolution. , 2020, 16, e1007857.		0
52	Towards optogenetic vision restoration with high resolution. , 2020, 16, e1007857.		0
53	Towards optogenetic vision restoration with high resolution. , 2020, 16, e1007857.		0
54	Towards optogenetic vision restoration with high resolution. , 2020, 16, e1007857.		0

#	Article	IF	Citations
55	Towards optogenetic vision restoration with high resolution. , 2020, 16, e1007857.		0
56	Towards optogenetic vision restoration with high resolution. , 2020, 16, e1007857.		0