Matteo Carandini

List of Publications by Year
in descending order

113 papers	24,214 citations	20036 63 h-index	26792 111 g-index
242 all docs	242 docs citations	242 times ranked	17132 citing authors

#	Article	IF	Citations
1	Neural correlates of blood flow measured by ultrasound. Neuron, 2022, 110, 1631-1640.e4.	3.8	40
2	A transcriptomic axis predicts state modulation of cortical interneurons. Nature, 2022, 607, 330-338.	13.7	56
3	Long-range connections enrich cortical computations. Neuroscience Research, 2021, 162, 1-12.	1.0	0
4	Striatal activity topographically reflects cortical activity. Nature, 2021, 591, 420-425.	13.7	139
5	Spatial modulation of visual responses arises in cortex with active navigation. ELife, 2021, 10, .	2.8	32
6	Neuropixels 2.0: A miniaturized high-density probe for stable, long-term brain recordings. Science, 2021, 372, .	6.0	467
7	Standardized and reproducible measurement of decision-making in mice. ELife, 2021, 10, .	2.8	88
8	Sensory coding and the causal impact of mouse cortex in a visual decision. ELife, 2021, 10, .	2.8	63
9	Dopamine Axons in Dorsal Striatum Encode Contralateral Visual Stimuli and Choices. Journal of Neuroscience, 2021, 41, 7197-7205.	1.7	24
10	A Canonical Scheme of Bottom-Up and Top-Down Information Flows in the Frontoparietal Network. Frontiers in Neural Circuits, 2021, 15, 691314.	1.4	7
11	Dopaminergic and Prefrontal Basis of Learning from Sensory Confidence and Reward Value. Neuron, 2020, 105, 700-711.e6.	3.8	109
12	Spatial connectivity matches direction selectivity in visual cortex. Nature, 2020, 588, 648-652.	13.7	87
13	Mouse Visual Cortex Is Modulated by Distance Traveled and by Theta Oscillations. Current Biology, 2020, 30, 3811-3817.e6.	1.8	47
14	Cortical State Fluctuations during Sensory Decision Making. Current Biology, 2020, 30, 4944-4955.e7.	1.8	48
15	Arousal Modulates Retinal Output. Neuron, 2020, 107, 487-495.e9.	3.8	90
16	Rigbox: An Open-Source Toolbox for Probing Neurons and Behavior. ENeuro, 2020, 7, ENEURO.0406-19.2020.	0.9	19
17	Reinforcement biases subsequent perceptual decisions when confidence is low, a widespread behavioral phenomenon. ELife, 2020, 9, .	2.8	71
18	High-dimensional geometry of population responses in visual cortex. Nature, 2019, 571, 361-365.	13.7	370

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19	Charting the Structure of Neuroscience. Neuron, 2019, 102, 732-734.	3.8	3
20	Spontaneous behaviors drive multidimensional, brainwide activity. Science, 2019, 364, 255.	6.0	1,013
21	Distributed coding of choice, action and engagement across the mouse brain. Nature, 2019, 576, 266-273.	13.7	452
22	The impact of bilateral ongoing activity on evoked responses in mouse cortex. ELife, 2019, 8, .	2.8	53
23	Vision and Locomotion Shape the Interactions between Neuron Types in Mouse Visual Cortex. Neuron, 2018, 98, 602-615.e8.	3.8	204
24	Challenges and opportunities for large-scale electrophysiology with Neuropixels probes. Current Opinion in Neurobiology, 2018, 50, 92-100.	2.0	244
25	Streamlined sensory motor communication through cortical reciprocal connectivity in a visually guided eye movement task. Nature Communications, 2018, 9, 338.	5.8	66
26	Effects of Arousal on Mouse Sensory Cortex Depend on Modality. Cell Reports, 2018, 22, 3160-3167.	2.9	71
27	Coherent encoding of subjective spatial position in visual cortex and hippocampus. Nature, 2018, 562, 124-127.	13.7	197
28	Decision and navigation in mouse parietal cortex. ELife, 2018, 7, .	2.8	74
29	Subcortical Source and Modulation of the Narrowband Gamma Oscillation in Mouse Visual Cortex. Neuron, 2017, 93, 315-322.	3.8	140
30	Selective Suppression of Local Circuits during Movement Preparation in the Mouse Motor Cortex. Cell Reports, 2017, 18, 2676-2686.	2.9	31
31	Focal cortical seizures start as standing waves and propagate respecting homotopic connectivity. Nature Communications, 2017, 8, 217.	5.8	67
32	High-Yield Methods for Accurate Two-Alternative Visual Psychophysics in Head-Fixed Mice. Cell Reports, 2017, 20, 2513-2524.	2.9	152
33	Fully integrated silicon probes for high-density recording of neural activity. Nature, 2017, 551, 232-236.	13.7	1,531
34	An International Laboratory for Systems and Computational Neuroscience. Neuron, 2017, 96, 1213-1218.	3.8	60
35	Aberrant Cortical Activity in Multiple GCaMP6-Expressing Transgenic Mouse Lines. ENeuro, 2017, 4, ENEURO.0207-17.2017.	0.9	221
36	Long Term Recordings with Immobile Silicon Probes in the Mouse Cortex. PLoS ONE, 2016, 11, e0151180.	1.1	72

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37	Local and global contributions to hemodynamic activity in mouse cortex. Journal of Neurophysiology, 2016, 115, 2931-2936.	0.9	27
38	Millisecond Coupling of Local Field Potentials to Synaptic Currents in the Awake Visual Cortex. Neuron, 2016, 90, 35-42.	3.8	87
39	Adaptable history biases in human perceptual decisions. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, E3548-57.	3.3	160
40	An excitatory basis for divisive normalization in visual cortex. Nature Neuroscience, 2016, 19, 568-570.	7.1	69
41	Spike sorting for large, dense electrode arrays. Nature Neuroscience, 2016, 19, 634-641.	7.1	671
42	Imaging the Awake Visual Cortex with a Genetically Encoded Voltage Indicator. Journal of Neuroscience, 2015, 35, 53-63.	1.7	120
43	Cortical State Determines Global Variability and Correlations in Visual Cortex. Journal of Neuroscience, 2015, 35, 170-178.	1.7	207
44	Transgenic Mice for Intersectional Targeting of Neural Sensors and Effectors with High Specificity and Performance. Neuron, 2015, 85, 942-958.	3.8	992
45	Diverse coupling of neurons to populations in sensory cortex. Nature, 2015, 521, 511-515.	13.7	393
46	The Nature of Shared Cortical Variability. Neuron, 2015, 87, 644-656.	3.8	208
47	Five key factors determining pairwise correlations in visual cortex. Journal of Neurophysiology, 2015, 114, 1022-1033.	0.9	39
48	Cascaded Effects of Spatial Adaptation in the Early Visual System. Neuron, 2014, 81, 529-535.	3.8	72
49	Atallah et al. reply. Nature, 2014, 508, E3-E3.	13.7	30
50	Distal connectivity causes summation and division across mouse visual cortex. Nature Neuroscience, 2014, 17, 30-32.	7.1	56
51	A Cortical Rein on the Tectumâ€™s Gain. Neuron, 2014, 84, 6-8.	3.8	4
52	Representation of Concurrent Stimuli by Population Activity in Visual Cortex. Neuron, 2014, 83, 252.	3.8	0
53	Integration of visual motion and locomotion in mouse visual cortex. Nature Neuroscience, 2013, 16, 1864-1869.	7.1	353
54	Inhibition dominates sensory responses in the awake cortex. Nature, 2013, 493, 97-100.	13.7	494

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55	Adaptation maintains population homeostasis in primary visual cortex. Nature Neuroscience, 2013, 16, 724-729.	7.1	140
56	Locomotion Controls Spatial Integration in Mouse Visual Cortex. Current Biology, 2013, 23, 890-894.	1.8	224
57	Probing perceptual decisions in rodents. Nature Neuroscience, 2013, 16, 824-831.	7.1	291
58	Fast Hemodynamic Responses in the Visual Cortex of the Awake Mouse. Journal of Neuroscience, 2013, 33, 18343-18351.	1.7	95
59	Robustness of Traveling Waves in Ongoing Activity of Visual Cortex. Journal of Neuroscience, 2012, 32, 3088-3094.	1.7	57
60	Population Rate Dynamics and Multineuron Firing Patterns in Sensory Cortex. Journal of Neuroscience, 2012, 32, 17108-17119.	1.7	57
61	Traveling Waves in Visual Cortex. Neuron, 2012, 75, 218-229.	3.8	237
62	Normalization as a canonical neural computation. Nature Reviews Neuroscience, 2012, 13, 51-62.	4.9	1,408
63	Parvalbumin-Expressing Interneurons Linearly Transform Cortical Responses to Visual Stimuli. Neuron, 2012, 73, 159-170.	3.8	542
64	From circuits to behavior: a bridge too far?. Nature Neuroscience, 2012, 15, 507-509.	7.1	214
65	Restoration of vision after transplantation of photoreceptors. Nature, 2012, 485, 99-103.	13.7	447
66	Area V1. Scholarpedia Journal, 2012, 7, 12105.	0.3	5
67	GABA_AInhibition Controls Response Gain in Visual Cortex. Journal of Neuroscience, 2011, 31, 5931-5941.	1.7	176
68	The Detection of Visual Contrast in the Behaving Mouse. Journal of Neuroscience, 2011, 31, 11351-11361.	1.7	292
69	An uncorrelated state for the cortex?. F1000 Biology Reports, 2010, 2, .	4.0	3
70	Sensory systems. Current Opinion in Neurobiology, 2009, 19, 343-344.	2.0	5
71	Stimulus contrast modulates functional connectivity in visual cortex. Nature Neuroscience, 2009, 12, 70-76.	7.1	328
72	Coding of stimulus sequences by population responses in visual cortex. Nature Neuroscience, 2009, 12, 1317-1324.	7.1	61

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73	Local Origin of Field Potentials in Visual Cortex. Neuron, 2009, 61, 35-41.	3.8	493
74	Representation of Concurrent Stimuli by Population Activity in Visual Cortex. Neuron, 2009, 64, 931-942.	3.8	208
75	NeuronalÂSelectivity and Local Map Structure in Visual Cortex. Neuron, 2008, 57, 673-679.	3.8	108
76	Functional Mechanisms Shaping Lateral Geniculate Responses to Artificial and Natural Stimuli. Neuron, 2008, 58, 625-638.	3.8	112
77	Thalamic filtering of retinal spike trains by postsynaptic summation. Journal of Vision, 2007, 7, 20.	0.1	72
78	Motion Integration by Neurons in Macaque MT Is Local, Not Global. Journal of Neuroscience, 2007, 27, 366-370.	1.7	125
79	Melting the Iceberg: Contrast Invariance in Visual Cortex. Neuron, 2007, 54, 11-13.	3.8	24
80	Standing Waves and Traveling Waves Distinguish Two Circuits in Visual Cortex. Neuron, 2007, 55, 103-117.	3.8	220
81	Temporal properties of surround suppression in cat primary visual cortex. Visual Neuroscience, 2007, 24, 679-690.	0.5	37
82	Independent Encoding of Position and Orientation by Population Responses in Primary Visual Cortex. , 2007, , 30-41.		1
83	Measuring the brain's assumptions. Nature Neuroscience, 2006, 9, 468-470.	7.1	5
84	What simple and complex cells compute. Journal of Physiology, 2006, 577, 463-466.	1.3	33
85	The Statistical Computation Underlying Contrast Gain Control. Journal of Neuroscience, 2006, 26, 6346-6353.	1.7	74
86	Independence of luminance and contrast in natural scenes and in the early visual system. Nature Neuroscience, 2005, 8, 1690-1697.	7.1	331
87	Mapping of Stimulus Energy in Primary Visual Cortex. Journal of Neurophysiology, 2005, 94, 788-798.	0.9	84
88	The Suppressive Field of Neurons in Lateral Geniculate Nucleus. Journal of Neuroscience, 2005, 25, 10844-10856.	1.7	202
89	Two Distinct Mechanisms of Suppression in Human Vision. Journal of Neuroscience, 2005, 25, 8704-8707.	1.7	179
90	Somatosensory Integration Controlled by Dynamic Thalamocortical Feed-Forward Inhibition. Neuron, 2005, 48, 315-327.	3.8	552

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91	Do We Know What the Early Visual System Does?. Journal of Neuroscience, 2005, 25, 10577-10597.	1.7	563
92	Contrast invariance of functional maps in cat primary visual cortex. Journal of Vision, 2004, 4, 1.	0.1	27
93	Amplification of Trial-to-Trial Response Variability by Neurons in Visual Cortex. PLoS Biology, 2004, 2, e264.	2.6	187
94	The contribution of spike threshold to the dichotomy of cortical simple and complex cells. Nature Neuroscience, 2004, 7, 1113-1122.	7.1	200
95	Visual Cortex: Seeing Motion. Current Biology, 2003, 13, R906-R908.	1.8	7
96	Masking by fast gratings. Journal of Vision, 2002, 2, 2.	0.1	30
97	Testing the Bayesian model of perceived speed. Vision Research, 2002, 42, 2253-2257.	0.7	75
98	Suppression without Inhibition in Visual Cortex. Neuron, 2002, 35, 759-771.	3.8	194
99	A Synaptic Explanation of Suppression in Visual Cortex. Journal of Neuroscience, 2002, 22, 10053-10065.	1.7	192
100	Stimulus dependence of two-state fluctuations of membrane potential in cat visual cortex. Nature Neuroscience, 2000, 3, 617-621.	7.1	201
101	Visual cortex: Fatigue and adaptation. Current Biology, 2000, 10, R605-R607.	1.8	60
102	Membrane Potential and Firing Rate in Cat Primary Visual Cortex. Journal of Neuroscience, 2000, 20, 470-484.	1.7	372
103	Orientation Tuning of Input Conductance, Excitation, and Inhibition in Cat Primary Visual Cortex. Journal of Neurophysiology, 2000, 84, 909-926.	0.9	446
104	Linearity and Gain Control in V1 Simple Cells. Cerebral Cortex, 1999, , 401-443.	0.6	55
105	Pattern adaptation and cross-orientation interactions in the primary visual cortex. Neuropharmacology, 1998, 37, 501-511.	2.0	115
106	Linearity and Normalization in Simple Cells of the Macaque Primary Visual Cortex. Journal of Neuroscience, 1997, 17, 8621-8644.	1.7	810
107	Adaptation to contingencies in macaque primary visual cortex. Philosophical Transactions of the Royal Society B: Biological Sciences, 1997, 352, 1149-1154.	1.8	64
108	A Tonic Hyperpolarization Underlying Contrast Adaptation in Cat Visual Cortex. Science, 1997, 276, 949-952.	6.0	313

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109	Predictions of a recurrent model of orientation selectivity. Vision Research, 1997, 37, 3061-3071.	0.7	122
110	Spike train encoding by regular-spiking cells of the visual cortex. Journal of Neurophysiology, 1996, 76, 3425-3441.	0.9	93
111	Summation and Division in V1 Simple Cells. , 1995, , 59-65.		2
112	Chromatic properties of neurons in macaque MT. Visual Neuroscience, 1994, 11, 455-466.	0.5	155
113	Summation and division by neurons in primate visual cortex. Science, 1994, 264, 1333-1336.	6.0	531