Alessandro Treves

List of Publications by Year
in descending order

154 papers	10,785 citations	66343 42 h-index	36028 97 g-index
180 all docs	180 docs citations	180 times ranked	5924 citing authors

#	Article	IF	Citations
1	Computational analysis of the role of the hippocampus in memory. Hippocampus, 1994, 4, 374-391.	1.9	1,097
2	Distinct Ensemble Codes in Hippocampal Areas CA3 and CA1. Science, 2004, 305, 1295-1298.	12.6	695
3	Computational constraints suggest the need for two distinct input systems to the hippocampal CA3 network. Hippocampus, 1992, 2, 189-199.	1.9	672
4	Hippocampal remapping and grid realignment in entorhinal cortex. Nature, 2007, 446, 190-194.	27.8	610
5	Morphing Marilyn into Maggie dissociates physical and identity face representations in the brain. Nature Neuroscience, 2005, 8, 107-113.	14.8	492
6	The Upward Bias in Measures of Information Derived from Limited Data Samples. Neural Computation, 1995, 7, 399-407.	2.2	339
7	Progressive Transformation of Hippocampal Neuronal Representations in â€œMorphedâ€•Environments. Neuron, 2005, 48, 345-358.	8.1	296
8	Correlations and the encoding of information in the nervous system. Proceedings of the Royal Society B: Biological Sciences, 1999, 266, 1001-1012.	2.6	291
9	Theta-paced flickering between place-cell maps in the hippocampus. Nature, 2011, 478, 246-249.	27.8	269
10	The emergence of grid cells: Intelligent design or just adaptation?. Hippocampus, 2008, 18, 1256-1269.	1.9	264
11	Analytical estimates of limited sampling biases in different information measures. Network: Computation in Neural Systems, 1996, 7, 87-107.	3.6	262
12	What determines the capacity of autoassociative memories in the brain?. Network: Computation in Neural Systems, 1991, 2, 371-397.	3.6	246
13	What is the mammalian dentate gyrus good for?. Neuroscience, 2008, 154, 1155-1172.	2.3	246
14	Title is missing!. Network: Computation in Neural Systems, 1996, 7, 87-107.	3.6	239
15	Mean-field analysis of neuronal spike dynamics. Network: Computation in Neural Systems, 1993, 4, 259-284.	3.6	228
16	The representational capacity of the distributed encoding of information provided by populations of neurons in primate temporal visual cortex. Experimental Brain Research, 1997, 114, 149-162.	1.5	217
17	The neuronal encoding of information in the brain. Progress in Neurobiology, 2011, 95, 448-490.	5.7	216
18	Place cells in the hippocampus: Eleven maps for eleven rooms. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 18428-18435.	7.1	203

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19	Information About Spatial View in an Ensemble of Primate Hippocampal Cells. Journal of Neurophysiology, 1998, 79, 1797-1813.	1.8	179
20	The relative advantages of sparse versus distributed encoding for associative neuronal networks in the brain. Network: Computation in Neural Systems, 1990, 1, 407-421.	3.6	133
21	Graded-response neurons and information encodings in autoassociative memories. Physical Review A, 1990, 42, 2418-2430.	2.5	132
22	Mean-field analysis of neuronal spike dynamics. Network: Computation in Neural Systems, 1993, 4, 259-284.	3.6	129
23	Information in the neuronal representation of individual stimuli in the primate temporal visual cortex. Journal of Computational Neuroscience, 1997, 4, 309-333.	1.0	119
24	What determines the capacity of autoassociative memories in the brain?. Network: Computation in Neural Systems, 1991, 2, 371-397.	3.6	114
25	How Well Can We Estimate the Information Carried in Neuronal Responses from Limited Samples?. Neural Computation, 1997, 9, 649-665.	2.2	108
26	Frontal latching networks: a possible neural basis for infinite recursion. Cognitive Neuropsychology, 2005, 22, 276-291.	1.1	107
27	On Decoding the Responses of a Population of Neurons from Short Time Windows. Neural Computation, 1999, 11, 1553-1577.	2.2	101
28	Stable and Rapid Recurrent Processing in Realistic Autoassociative Memories. Neural Computation, 1998, 10, 431-450.	2.2	89
29	Firing Rate Distributions and Efficiency of Information Transmission of Inferior Temporal Cortex Neurons to Natural Visual Stimuli. Neural Computation, 1999, 11, 601-631.	2.2	87
30	Grid alignment in entorhinal cortex. Biological Cybernetics, 2012, 106, 483-506.	1.3	85
31	The relative advantages of sparse versus distributed encoding for associative neuronal networks in the brain. Network: Computation in Neural Systems, 1990, 1, 407-421.	3.6	78
32	A model for the differentiation between grid and conjunctive units in medial entorhinal cortex. Hippocampus, 2013, 23, 1410-1424.	1.9	77
33	Experience-dependent coding of facial expression in superior temporal sulcus. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 13485-13489.	7.1	69
34	Quantitative estimate of the information relayed by the Schaffer collaterals. Journal of Computational Neuroscience, 1995, 2, 259-272.	1.0	68
35	Modeling neocortical areas with a modular neural network. BioSystems, 1998, 48, 47-55.	2.0	67
36	Computational constraints between retrieving the past and predicting the future, and the CA3-CA1 differentiation. Hippocampus, 2004, 14, 539-556.	1.9	64

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37	Neural networks in the brain involved in memory and recall. Progress in Brain Research, 1994, 102, 335-341.	1.4	60
38	The role of competitive learning in the generation of DG fields from EC inputs. Cognitive Neurodynamics, 2009, 3, 177-187.	4.0	59
39	On the perceptual structure of face space. BioSystems, 1997, 40, 189-196.	2.0	56
40	Integration of grid maps in merged environments. Nature Neuroscience, 2018, 21, 92-101.	14.8	56
41	The CA3 network as a memory store for spatial representations. Learning and Memory, 2007, 14, 732-744.	1.3	50
42	Information encoding in the inferior temporal visual cortex: contributions of the firing rates and the correlations between the firing of neurons. Biological Cybernetics, 2004, 90, 19-32.	1.3	48
43	Hippocampal shape differences in dementia with Lewy bodies. NeuroImage, 2008, 41, 699-705.	4.2	47
44	Why the simplest notion of neocortex as an autoassociative memory would not work. Network: Computation in Neural Systems, 1992, 3, 379-384.	3.6	45
45	Time for retrieval in recurrent associative memories. Physica D: Nonlinear Phenomena, 1997, 107, 392-400.	2.8	45
46	How Informative Are Spatial CA3 Representations Established by the Dentate Gyrus?. PLoS Computational Biology, 2010, 6, e1000759.	3.2	43
47	The use of decoding to analyze the contribution to the information of the correlations between the firing of simultaneously recorded neurons. Experimental Brain Research, 2004, 155, 370-384.	1.5	41
48	Converging Neuronal Activity in Inferior Temporal Cortex during the Classification of Morphed Stimuli. Cerebral Cortex, 2009, 19, 760-776.	2.9	41
49	Self-organization of multiple spatial and context memories in the hippocampus. Neuroscience and Biobehavioral Reviews, 2012, 36, 1609-1625.	6.1	40
50	The self-organization of grid cells in 3D. ELife, 2015, 4, .	6.0	40
51	The evolution of mammalian cortex, from lamination to arealization. Brain Research Bulletin, 2003, 60, 387-393.	3.0	38
52	Representing Where along with What Information in a Model of a Cortical Patch. PLoS Computational Biology, 2008, 4, e1000012.	3.2	36
53	Associative Memory Storage and Retrieval: Involvement of Theta Oscillations in Hippocampal Information Processing. Neural Plasticity, 2011, 2011, 1-15.	2.2	36
54	Cortical free-association dynamics: Distinct phases of a latching network. Physical Review E, 2012, 85, 051920.	2.1	36

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55	Face adaptation aftereffects reveal anterior medial temporal cortex role in high level category representation. NeuroImage, 2007, 37, 300-310.	4.2	33
56	Modulation of Perception and Brain Activity by Predictable Trajectories of Facial Expressions. Cerebral Cortex, 2010, 20, 694-703.	2.9	33
57	Why the simplest notion of neocortex as an autoassociative memory would not work. Network: Computation in Neural Systems, 1992, 3, 379-384.	3.6	33
58	<scp>S</scp>elforganization of modular activity of grid cells. Hippocampus, 2017, 27, 1204-1213.	1.9	32
59	Network Analysis of the Significance of Hippocampal Subfields. , 2008, , 328-342.		30
60	How recent experience affects the perception of ambiguous objects. Brain Research, 2010, 1322, 81-91.	2.2	29
61	Free association transitions in models of cortical latching dynamics. New Journal of Physics, 2008, 10, 015008.	2.9	28
62	ENCODING WORDS INTO A POTTS ATTRACTOR NETWORK. , 2014, , .		28
63	How much of the hippocampus can be explained by functional constraints?. Hippocampus, 1996, 6, 666-674.	1.9	27
64	An associative network with spatially organized connectivity. Journal of Statistical Mechanics: Theory and Experiment, 2004, 2004, P07010.	2.3	26
65	The dentate gyrus. , 2016, , 117-132.		26
66	Computational constraints that may have favoured the lamination of sensory cortex. Journal of Computational Neuroscience, 2003, 14, 271-282.	1.0	25
67	The storage capacity of Potts models for semantic memory retrieval. Journal of Statistical Mechanics: Theory and Experiment, 2005, 2005, P08010-P08010.	2.3	25
68	Can rodents conceive hyperbolic spaces?. Journal of the Royal Society Interface, 2015, 12, 20141214.	3.4	25
69	Standing on the gateway to memory: Shouldn't we step in?. Cognitive Neuropsychology, 2002, 19, 557-575.	1.1	24
70	Reducing a cortical network to a Potts model yields storage capacity estimates. Journal of Statistical Mechanics: Theory and Experiment, 2018, 2018, 043304.	2.3	24
71	Autoassociative memory retrieval and spontaneous activity bumps in small-world networks of integrate-and-fire neurons. Journal of Physiology (Paris), 2006, 100, 225-236.	2.1	22
72	Continuous attractors for dynamic memories. ELife, 2021, 10, .	6.0	21

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73	Lateral thinking, from the Hopfield model to cortical dynamics. Brain Research, 2012, 1434, 4-16.	2.2	20
74	Electrophysiological markers of cognitive aging: region specificity and computational consequences. Seminars in Neuroscience, 1994, 6, 359-367.	2.2	19
75	Neural attractor dynamics in object recognition. Experimental Brain Research, 2010, 203, 241-248.	1.5	19
76	Grid cells on the ball. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P03013.	2.3	18
77	The Capacity for Correlated Semantic Memories in the Cortex. Entropy, 2018, 20, 824.	2.2	18
78	Representational capacity of a set of independent neurons. Physical Review E, 2000, 63, 011910.	2.1	17
79	Redundancy and synergy arising from pairwise correlations in neuronal ensembles. Journal of Computational Neuroscience, 2002, 12, 165-174.	1.0	17
80	Dissociating episodic from semantic access mode by mutual information measures: Evidence from aging and Alzheimerâ€™s disease. Journal of Physiology (Paris), 2006, 100, 142-153.	2.1	17
81	The spatial representations acquired in CA3 by self-organizing recurrent connections. Frontiers in Cellular Neuroscience, 2013, 7, 112.	3.7	17
82	Rats, nets, maps, and the emergence of place cells. Cognitive, Affective and Behavioral Neuroscience, 1992, 20, 1-8.	1.3	17
83	Localized activity profiles and storage capacity of rate-based autoassociative networks. Physical Review E, 2006, 73, 061904.	2.1	16
84	The complexity of latching transitions in large scale cortical networks. Natural Computing, 2007, 6, 169-185.	3.0	16
85	Title is missing!. Network: Computation in Neural Systems, 1996, 7, 109-122.	3.6	16
86	A Mind Free to Wander: Neural and Computational Constraints on Spontaneous Thought. Frontiers in Psychology, 2019, 10, 39.	2.1	15
87	Modelling adaptation aftereffects in associative memory. Neurocomputing, 2007, 70, 2000-2004.	5.9	14
88	An evolutionary niche for quantitative theoretical analyses?. Behavioral and Brain Sciences, 2006, 29, 23-23.	0.7	13
89	Uninformative memories will prevail: The storage of correlated representations and its consequences. HFSP Journal, 2007, 1, 249-262.	2.5	13
90	Partial coherence and frustration in selfâ€organizing spherical grids. Hippocampus, 2020, 30, 302-313.	1.9	13

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91	Pattern retrieval in threshold-linear associative nets. Network: Computation in Neural Systems, 1996, 7, 109-122.	3.6	12
92	Stability of the replica-symmetric solution for the information conveyed by a neural network. Physical Review E, 1998, 57, 3302-3310.	2.1	12
93	Unveiling the metric structure of internal representations of space. Frontiers in Neural Circuits, 2013, 7, 81.	2.8	12
94	Life on the Edge: Latching Dynamics in a Potts Neural Network. Entropy, 2017, 19, 468.	2.2	12
95	Can Grid Cell Ensembles Represent Multiple Spaces?. Neural Computation, 2019, 31, 2324-2347.	2.2	12
96	Angular and linear speed cells in the parahippocampal circuits. Nature Communications, 2022, 13, 1907.	12.8	12
97	Disappearance of spurious states in analog associative memories. Physical Review E, 2003, 67, 041906.	2.1	11
98	Is the world full of circles?. Journal of Vision, 2002, 2, 4-4.	0.3	10
99	A modular latching chain. Cognitive Neurodynamics, 2014, 8, 37-46.	4.0	10
100	Latching dynamics as a basis for short-term recall. PLoS Computational Biology, 2021, 17, e1008809.	3.2	9
101	LOCAL NEOCORTICAL PROCESSING: A TIME FOR RECOGNITION. International Journal of Neural Systems, 1992, 03, 115-119.	5.2	8
102	Differential impact of brain damage on the access mode to memory representations: an information theoretic approach. European Journal of Neuroscience, 2007, 26, 2702-2712.	2.6	8
103	Professional or Amateur? The Phonological Output Buffer as a Working Memory Operator. Entropy, 2020, 22, 662.	2.2	8
104	Grid maps for spaceflight, anyone? They are for free!. Behavioral and Brain Sciences, 2013, 36, 566-567.	0.7	7
105	Efficiency of Local Learning Rules in Threshold-Linear Associative Networks. Physical Review Letters, 2021, 126, 018301.	7.8	5
106	Theoretical model of neuronal population coding of stimuli with both continuous and discrete dimensions. Physical Review E, 2001, 64, 021912.	2.1	4
107	Neural Phase Transitions That Made Us Mammals. Lecture Notes in Computer Science, 2004, , 55-70.	1.3	4
108	Computational constraints on compositional interpretation: Refocusing the debate on language universals. Lingua, 2010, 120, 2717-2722.	1.0	4

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109	A Neural Network Perspective on the Syntactic-Semantic Association between Mass and Count Nouns. Journal of Advances in Linguistics, 2016, 6, 964-976.	0.0	4
110	An Uncouth Approach to Language Recursivity. Biolinguistics, 2011, 5, 133-150.	0.6	4
111	Correlated firing and the information represented by neurons in short epochs. Neurocomputing, 1999, 26-27, 499-504.	5.9	3
112	Quantitative Analysis of a Schaffer Collateral Model. , 2000, , 257-272.		3
113	A Quantitative Model of Information Processing in CA1. , 2000, , 273-289.		3
114	Analytical Model for the Effects of Learning on Spike Count Distributions. Neural Computation, 2000, 12, 1773-1787.	2.2	3
115	How much do they tell us to move?. Neurocomputing, 2001, 38-40, 1181-1184.	5.9	3
116	Learning to Predict Through Adaptation. Neuroinformatics, 2004, 2, 361-366.	2.8	3
117	Spatial Cognition, Memory Capacity, and the Evolution of Mammalian Hippocampal Networks. , 2009, , 41-60.		3
118	Has the hippocampus really forgotten about space?. Current Opinion in Neurobiology, 2021, 71, 164-169.	4.2	3
119	Replica symmetric evaluation of the information transfer in a two-layer network in the presence of continuous and discrete stimuli. Physical Review E, 2002, 65, 041918.	2.1	2
120	In poetry, if meterÂhas toÂhelp memory, it takesÂitsÂtime. Open Research Europe, 0, 1, 59.	2.0	2
121	On the Time Required for Recurrent Processing in the Brain. , 1996, , 371-382.		2
122	Computational analysis of the operation of a real neuronal network in the brain: the role of the hippocampus in memory. , 1992, , 891-898.		2
123	After effects in the Perception of Emotion Following Brief, Masked Adaptor Faces. The Open Behavioral Science Journal, 2008, 2, 36-52.	0.8	2
124	Non-hexagonal neural dynamics in vowel space. AIMS Neuroscience, 2020, 7, 275-298.	2.3	2
125	BLISS: an Artificial Language for Learnability Studies. Cognitive Computation, 2011, 3, 539-553.	5.2	1
126	A talkative Potts attractor neural network welcomes BLISS words. BMC Neuroscience, 2012, 13, .	1.9	1

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127	How much of the hippocampus can be explained by functional constraints?. , 1996, 6, 666.		1
128	Part 3. Coding and representation. , 0, , 53-75.		1
129	The Challenge of Taming a Latching Network Near Criticality. Springer Series on Bio- and Neurosystems, 2019, , 81-94.	0.2	1
130	Can mass-count syntax be derived from semantics?. Language Faculty and Beyond, 2020, , 83-101.	0.1	1
131	Analogue resolution in a model of the Schaffer collaterals. Lecture Notes in Computer Science, 1997, , 61-66.	1.3	0
132	Synthesizing synchrony versus dissecting dissonance. Behavioral and Brain Sciences, 1997, 20, 700-700.	0.7	0
133	Mere functional characterization is not enough to understand memory circuits. Behavioral and Brain Sciences, 1999, 22, 466-467.	0.7	0
134	Disorders of Brain, Behavior and Cognition: The Neurocomputational Perspective edited by James A. Reggia, Eytan Ruppin and Dennis L. Glanzman. Trends in Neurosciences, 2000, 23, 378-379.	8.6	0
135	More dorsal cortex, yes, but what flavor?. Behavioral and Brain Sciences, 2003, 26, 571-572.	0.7	0
136	Course 13 Of the evolution of the brain. Les Houches Summer School Proceedings, 2005, , 641-689.	0.2	0
137	Distributed neural blackboards could be more attractive. Behavioral and Brain Sciences, 2006, 29, 79-80.	0.7	0
138	Semantic cognition: Distributed, but then attractive. Behavioral and Brain Sciences, 2008, 31, 718-719.	0.7	0
139	The spatial information content of DG inputs. BMC Neuroscience, 2009, 10, .	1.9	0
140	Neural basis of perceptual expectations: insights from transient dynamics of attractor neural networks. BMC Neuroscience, 2009, 10, .	1.9	0
141	Free concepts association: a neural model. BMC Neuroscience, 2011, 12, .	1.9	0
142	Reorganization of spatial maps in the hippocampal circuit. BMC Neuroscience, 2011, 12, .	1.9	0
143	BLISS: an artificial language for learnability studies. BMC Neuroscience, 2011, 12, .	1.9	0
144	Continuous or dicrete? Attractor dynamics and spatial representations in a model of the hippocampal network. BMC Neuroscience, 2013, 14, .	1.9	0

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145	A model for greed cells in 3-D environments. BMC Neuroscience, 2013, 14, .	1.9	0
146	Editorial overview: Circuit plasticity and memory. Current Opinion in Neurobiology, 2015, 35, v-vii.	4.2	0
147	Reconciling grid cells with place cells over a set of flexible charts. IBRO Reports, 2019, 6, S41.	0.3	0
148	Cover Image, Volume 30, Issue 4. Hippocampus, 2020, 30, .	1.9	0
149	Hyper-alignment: Great mice think alike. Current Biology, 2021, 31, R1138-R1140.	3.9	0
150	Grid Cells Lose Coherence in Realistic Environments. , 0, , .		0
151	The Autoassociative Hypothesis Places Constraints on Hippocampal Organization. , 1993, , 21-26.		0
152	Setting Up New Memories: The Ideal Job for The Mammalian Dentate Gyrus. , 2008, , 125-129.		0
153	Navigating through the ebbs and flows of language. Current Opinion in Neurobiology, 2021, 70, 130-136.	4.2	0
154	Challenges for Place and Grid Cell Models. Advances in Experimental Medicine and Biology, 2022, 1359, 285-312.	1.6	0