Gasper Tkacik

List of Publications by Year
in descending order

Source: https://exaly.com/author-pdf/5601674/publications.pdf

Version: 2024-02-01

79 papers	4,339 citations	109321 35 h-index	138484 58 g-index
95 all docs	95 docs citations	95 times ranked	3908 citing authors

#	Article	IF	Citations
1	Predicting bacterial promoter function and evolution from random sequences. ELife, 2022, 11, .	6.0	17
2	Minimal biophysical model of combined antibiotic action. PLoS Computational Biology, 2021, 17, e1008529.	3.2	4
3	The many bits of positional information. Development (Cambridge), 2021, 148, .	2.5	34
4	Inferring the function performed by a recurrent neural network. PLoS ONE, 2021, 16, e0248940.	2.5	4
5	Statistical analysis and optimality of neural systems. Neuron, 2021, 109, 1227-1241.e5.	8.1	17
6	Minimal biophysical model of combined antibiotic action. , 2021, 17, e1008529.		0
7	Minimal biophysical model of combined antibiotic action. , 2021, 17, e1008529.		0
8	Minimal biophysical model of combined antibiotic action. , 2021, 17, e1008529.		0
9	Minimal biophysical model of combined antibiotic action. , 2021, 17, e1008529.		0
10	Nonequilibrium models of optimal enhancer function. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 31614-31622.	7.1	17
11	Mechanisms of drug interactions between translation-inhibiting antibiotics. Nature Communications, 2020, 11, 4013.	12.8	37
12	Learning probabilistic neural representations with randomly connected circuits. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 25066-25073.	7.1	24
13	Clustering of Neural Activity: A Design Principle for Population Codes. Frontiers in Computational Neuroscience, 2020, 14, 20.	2.1	9
14	Molecular noise of innate immunity shapes bacteria-phage ecologies. PLoS Computational Biology, 2019, 15, e1007168.	3.2	7
15	Estimating information in time-varying signals. PLoS Computational Biology, 2019, 15, e1007290.	3.2	18
16	Optimal Decoding of Cellular Identities in a Genetic Network. Cell, 2019, 176, 844-855.e15.	28.9	132
17	A Tight Upper Bound on Mutual Information. , 2019, , .		3
18	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

#	Article	IF	Citations
19	Nonlinear decoding of a complex movie from the mammalian retina. PLoS Computational Biology, 2018, 14, e1006057.	3.2	35
20	Separating intrinsic interactions from extrinsic correlations in a network of sensory neurons. Physical Review E, 2018, 98, .	2.1	15
21	Evolutionary potential of transcription factors for gene regulatory rewiring. Nature Ecology and Evolution, 2018, 2, 1633-1643.	7.8	25
22	Distributed and dynamic intracellular organization of extracellular information. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 6088-6093.	7.1	58
23	Statistical mechanics for metabolic networks during steady state growth. Nature Communications, 2018, 9, 2988.	12.8	38
24	Probabilistic models of individual and collective animal behavior. PLoS ONE, 2018, 13, e0193049.	2.5	22
25	Biased partitioning of the multidrug efflux pump AcrAB-TolC underlies long-lived phenotypic heterogeneity. Science, 2017, 356, 311-315.	12.6	168
26	Evolution of new regulatory functions on biophysically realistic fitness landscapes. Nature Communications, 2017, 8, 216.	12.8	25
27	Discrete modes of social information processing predict individual behavior of fish in a group. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 10149-10154.	7.1	40
28	Multiplexed computations in retinal ganglion cells of a single type. Nature Communications, 2017, 8, 1964.	12.8	47
29	Shaping bacterial population behavior through computer-interfaced control of individual cells. Nature Communications, 2017, 8, 1535.	12.8	92
30	Decoding of position in the developing neural tube from antiparallel morphogen gradients. Science, 2017, 356, 1379-1383.	12.6	144
31	Maximum entropy models as a tool for building precise neural controls. Current Opinion in Neurobiology, 2017, 46, 120-126.	4.2	27
32	Probabilistic models for neural populations that naturally capture global coupling and criticality. PLoS Computational Biology, 2017, 13, e1005763.	3.2	22
33	Error-Robust Modes of the Retinal Population Code. PLoS Computational Biology, 2016, 12, e1005148.	3.2	24
34	A General Approximation for the Dynamics of Quantitative Traits. Genetics, 2016, 202, 1523-1548.	2.9	10
35	Extending the dynamic range of transcription factor action by translational regulation. Physical Review E, 2016, 93, 022404.	2.1	6
36	Understanding regulatory networks requires more than computing a multitude of graph statistics. Physics of Life Reviews, 2016, 17, 166-167.	2.8	0

#	Article	IF	Citations
37	Intrinsic limits to gene regulation by global crosstalk. Nature Communications, 2016, 7, 12307.	12.8	63
38	Information Processing in Living Systems. Annual Review of Condensed Matter Physics, 2016, 7, 89-117.	14.5	116
39	Beyond the French Flag Model: Exploiting Spatial and Gene Regulatory Interactions for Positional Information. PLoS ONE, 2016, 11, e0163628.	2.5	12
40	Optimizing information flow in small genetic networks. IV. Spatial coupling. Physical Review E, 2015, 91, 062710.	2.1	28
41	Stochastic Proofreading Mechanism Alleviates Crosstalk in Transcriptional Regulation. Physical Review Letters, 2015, 115, 248101.	7.8	21
42	High Accuracy Decoding of Dynamical Motion from a Large Retinal Population. PLoS Computational Biology, 2015, 11, e1004304.	3.2	49
43	Positional Information, Positional Error, and Readout Precision in Morphogenesis: A Mathematical Framework. Genetics, 2015, 199, 39-59.	2.9	63
44	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
45	Dynamics of Transcription Factor Binding Site Evolution. PLoS Genetics, 2015, 11, e1005639.	3.5	78
46	Neural Spikes, Identification from a Multielectrode Array. , 2015, , 1019-1023.		0
47	Searching for Collective Behavior in a Large Network of Sensory Neurons. PLoS Computational Biology, 2014, 10, e1003408.	3.2	190
48	Noise and Information Transmission in Promoters with Multiple Internal States. Biophysical Journal, 2014, 106, 1194-1204.	0.5	55
49	Adaptation to Changes in Higher-Order Stimulus Statistics in the Salamander Retina. PLoS ONE, 2014, 9, e85841.	2.5	15
50	Variance predicts salience in central sensory processing. ELife, 2014, 3, .	6.0	60
51	A simple method for estimating the entropy of neural activity. Journal of Statistical Mechanics: Theory and Experiment, 2013, 2013, P03015.	2.3	8
52	Natural scene statistics relate to perceptual salience of second-, third-, and fourth-order spatial correlations. BMC Neuroscience, 2013, 14, .	1.9	0
53	Retinal Metric: A Stimulus Distance Measure Derived from Population Neural Responses. Physical Review Letters, 2013, 110, 058104.	7.8	12
54	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

#	Article	IF	Citations
55	Learning Quadratic Receptive Fields from Neural Responses to Natural Stimuli. Neural Computation, 2013, 25, 1661-1692.	2.2	31
56	Transformation of Stimulus Correlations by the Retina. PLoS Computational Biology, 2013, 9, e1003344.	3.2	16
57	Stimulus-dependent Maximum Entropy Models of Neural Population Codes. PLoS Computational Biology, 2013, 9, e1002922.	3.2	80
58	Statistical Thermodynamics of Natural Images. Physical Review Letters, 2013, 110, 018701.	7.8	49
59	Positional information, in bits. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 16301-16308.	7.1	144
60	Optimizing information flow in small genetic networks. III. A self-interacting gene. Physical Review E, 2012, 85, 041903.	2.1	46
61	Fast, Scalable, Bayesian Spike Identification for Multi-Electrode Arrays. PLoS ONE, 2011, 6, e19884.	2.5	61
62	Natural Images from the Birthplace of the Human Eye. PLoS ONE, 2011, 6, e20409.	2.5	79
63	Information transmission in genetic regulatory networks: a review. Journal of Physics Condensed Matter, 2011, 23, 153102.	1.8	141
64	The Formation of the Bicoid Morphogen Gradient Requires Protein Movement from Anteriorly Localized mRNA. PLoS Biology, 2011, 9, e1000596.	5.6	159
65	Optimal population coding by noisy spiking neurons. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 14419-14424.	7.1	145
66	Optimizing information flow in small genetic networks. II. Feed-forward interactions. Physical Review E, 2010, 81, 041905.	2.1	84
67	Local statistics in natural scenes predict the saliency of synthetic textures. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 18149-18154.	7.1	75
68	Diffusion, dimensionality, and noise in transcriptional regulation. Physical Review E, 2009, 79, 051901.	2.1	47
69	Optimizing information flow in small genetic networks. Physical Review E, 2009, 80, 031920.	2.1	95
70	The dynamics of adaptation on correlated fitness landscapes. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 18638-18643.	7.1	117
71	Optimal correlation codes in populations of noisy spiking neurons. BMC Neuroscience, 2009, 10, .	1.9	1
72	Cell Biology: NetworksNetwork , RegulationRegulation and PathwaysPathways. , 2009, , 719-741.		6

#	Article	IF	Citations
73	Cell Biology: Networks, Regulation and Pathways. , 2009, , 449-476.		0
74	Decoding spike timing: The differential reverse-correlation method. BioSystems, 2008, 93, 90-100.	2.0	3
75	Information flow and optimization in transcriptional regulation. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 12265-12270.	7.1	232
76	Information capacity of genetic regulatory elements. Physical Review E, 2008, 78, 011910.	2.1	94
77	The Role of Input Noise in Transcriptional Regulation. PLoS ONE, 2008, 3, e2774.	2.5	91
78	Precise physical models of protein-DNA interaction from high-throughput data. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 501-506.	7.1	67
79	Information-based clustering. Proceedings of the National Academy of Sciences of the United States of America, 2005, 102, 18297-18302.	7.1	177