Statistical physics of inference: thresholds and algorithms

Citation Report

#	Article	IF	Citations
1	Phase diagram of matrix compressed sensing. Physical Review E, 2016, 94, 062136.	0.8	8
2	Spectral Entropies as Information-Theoretic Tools for Complex Network Comparison. Physical Review X, 2016, 6, .	2.8	66
3	An evolutionary strategy based on partial imitation for solving optimization problems. Physica A: Statistical Mechanics and Its Applications, 2016, 463, 262-269.	1.2	5
4	Phase transitions and optimal algorithms in high-dimensional Gaussian mixture clustering. , 2016, , .		15
5	Mean-field message-passing equations in the Hopfield model and its generalizations. Physical Review E, 2017, 95, 022117.	0.8	66
6	Statistical mechanics of unsupervised feature learning in a restricted Boltzmann machine with binary synapses. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 053302.	0.9	21
7	Statistical and computational phase transitions in spiked tensor estimation. , 2017, , .		44
8	Approximate Message-Passing Decoder and Capacity Achieving Sparse Superposition Codes. IEEE Transactions on Information Theory, 2017, 63, 4894-4927.	1.5	72
9	Constrained low-rank matrix estimation: phase transitions, approximate message passing and applications. Journal of Statistical Mechanics: Theory and Experiment, 2017, 2017, 073403.	0.9	52
10	Phase transitions in restricted Boltzmann machines with generic priors. Physical Review E, 2017, 96, 042156.	0.8	40
11	Inverse statistical problems: from the inverse Ising problem to data science. Advances in Physics, 2017, 66, 197-261.	35.9	179
12	Spectral dynamics of learning in restricted Boltzmann machines. Europhysics Letters, 2017, 119, 60001.	0.7	26
13	Thermodynamic efficiency of learning a rule in neural networks. New Journal of Physics, 2017, 19, 113001.	1.2	7
14	Decoding from pooled data: Phase transitions of message passing. , 2017, , .		1
15	Streaming Bayesian inference: Theoretical limits and mini-batch approximate message-passing. , 2017, , .		5
16	Information-theoretic thresholds from the cavity method. , 2017, , .		13
17	Algorithmic detectability threshold of the stochastic block model. Physical Review E, 2018, 97, 032301.	0.8	12
18	Out-of-equilibrium dynamical mean-field equations for the perceptron model. Journal of Physics A: Mathematical and Theoretical, 2018, 51, 085002.	0.7	31

#	Article	IF	Citations
19	Improved belief propagation algorithm finds many Bethe states in the random-field Ising model on random graphs. Physical Review E, 2018, 97, 012152.	0.8	7
20	Phase Transition in Protocols Minimizing Work Fluctuations. Physical Review Letters, 2018, 120, 180605.	2.9	45
21	Notes on computational-to-statistical gaps: predictions using statistical physics. Portugaliae Mathematica, 2018, 75, 159-186.	0.4	22
22	The Mutual Information in Random Linear Estimation Beyond i.i.d. Matrices. , 2018, , .		32
23	Data-driven diagnosis for compressed sensing with cross validation. Physical Review E, 2018, 98, .	0.8	4
24	Mutual Information as a Function of Matrix SNR for Linear Gaussian Channels. , 2018, , .		8
25	Exploring the diluted ferromagnetic p-spin model with a cavity master equation. Physical Review E, 2018, 97, 050103.	0.8	6
26	Information-theoretic thresholds from the cavity method. Advances in Mathematics, 2018, 333, 694-795.	0.5	44
27	Dilution of Ferromagnets via a Random Graph-Based Strategy. Complexity, 2018, 2018, 1-11.	0.9	6
28	Thermodynamics of Restricted Boltzmann Machines and Related Learning Dynamics. Journal of Statistical Physics, 2018, 172, 1576-1608.	0.5	28
29	Charting the Replica Symmetric Phase. Communications in Mathematical Physics, 2018, 359, 603-698.	1.0	20
30	Fundamental limits of symmetric low-rank matrix estimation. Probability Theory and Related Fields, 2019, 173, 859-929.	0.9	56
31	Spin Systems on Bethe Lattices. Communications in Mathematical Physics, 2019, 372, 441-523.	1.0	8
32	Jamming in Multilayer Supervised Learning Models. Physical Review Letters, 2019, 123, 160602.	2.9	24
33	Micro-, meso-, macroscales: The effect of triangles on communities in networks. Physical Review E, 2019, 100, 022315.	0.8	10
34	A Spin Glass Model for Reconstructing Nonlinearly Encrypted Signals Corrupted by Noise. Journal of Statistical Physics, 2019, 175, 789-818.	0.5	9
35	Correspondence between thermodynamics and inference. Physical Review E, 2019, 99, 052140.	0.8	12
36	Approximate survey propagation for statistical inference. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 023401.	0.9	15

#	ARTICLE	IF	CITATIONS
37	The Replica-Symmetric Prediction for Random Linear Estimation With Gaussian Matrices Is Exact. IEEE Transactions on Information Theory, 2019, 65, 2252-2283.	1.5	28
38	Solving Statistical Mechanics Using Variational Autoregressive Networks. Physical Review Letters, 2019, 122, 080602.	2.9	107
39	Optimal errors and phase transitions in high-dimensional generalized linear models. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 5451-5460.	3.3	88
40	Bypassing sluggishness: SWAP algorithm and glassiness in high dimensions. Physical Review E, 2019, 99, 031301.	0.8	15
41	A high-bias, low-variance introduction to Machine Learning for physicists. Physics Reports, 2019, 810, 1-124.	10.3	607
42	Typology of phase transitions in Bayesian inference problems. Physical Review E, 2019, 99, 042109.	0.8	23
43	Glassy Nature of the Hard Phase in Inference Problems. Physical Review X, 2019, 9, .	2.8	16
44	The Indirect Estimation Algorithm of MEMS IMU Stochastic Error Properties Based on Wavelet Variance. , 2019, , .		0
45	The algorithmic hardness threshold for continuous random energy models. Mathematical Statistics and Learning, 2020, 2, 77-101.	0.7	5
46	Self-planting: digging holes in rough landscapes. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 123301.	0.9	3
47	Comparing dynamics: deep neural networks versus glassy systems. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124013.	0.9	31
48	Blind Calibration for Sparse Regression: A State Evolution Analysis. , 2019, , .		0
49	Statistical mechanics of low-rank tensor decomposition. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124016.	0.9	4
50	The committee machine: computational to statistical gaps in learning a two-layers neural network. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124023.	0.9	12
51	High-temperature expansions and message passing algorithms. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 113301.	0.9	17
52	Entropy and mutual information in models of deep neural networks*. Journal of Statistical Mechanics: Theory and Experiment, 2019, 2019, 124014.	0.9	34
53	Machine learning and the physical sciences. Reviews of Modern Physics, 2019, 91, .	16.4	1,245
54	Complex Energy Landscapes in Spiked-Tensor and Simple Glassy Models: Ruggedness, Arrangements of Local Minima, and Phase Transitions. Physical Review X, 2019, 9, .	2.8	37

#	Article	IF	Citations
55	Decoding From Pooled Data: Phase Transitions of Message Passing. IEEE Transactions on Information Theory, 2019, 65, 572-585.	1.5	8
56	Fundamental Limits of Weak Recovery with Applications to Phase Retrieval. Foundations of Computational Mathematics, 2019, 19, 703-773.	1.5	37
57	Extreme value statistics of correlated random variables: A pedagogical review. Physics Reports, 2020, 840, 1-32.	10.3	113
59	Infinite-Dimensional Models in Statistical Physics. , 2020, , 1-36.		0
60	Atomic Liquids in Infinite Dimensions: Thermodynamics. , 2020, , 37-66.		0
61	Atomic Liquids in Infinite Dimensions: Equilibrium Dynamics. , 2020, , 67-98.		0
62	Thermodynamics of Glass States. , 2020, , 99-139.		0
63	Replica Symmetry Breaking and Hierarchical Free Energy Landscapes. , 2020, , 140-179.		0
64	The Gardner Transition. , 2020, , 180-198.		0
65	Counting Glass States: The Complexity. , 2020, , 199-230.		0
66	Packing Spheres in Large Dimensions. , 2020, , 231-250.		0
67	The Jamming Transition. , 2020, , 251-289.		0
68	Rheology of the Glass. , 2020, , 290-304.		0
70	Coherent Ising machines—Quantum optics and neural network Perspectives. Applied Physics Letters, 2020, 117, .	1.5	26
71	Statistical Physics for Medical Diagnostics: Learning, Inference, and Optimization Algorithms. Diagnostics, 2020, 10, 972.	1.3	3
72	Modeling the Influence of Data Structure on Learning in Neural Networks: The Hidden Manifold Model. Physical Review X, 2020, 10, .	2.8	40
73	Dismantling complex networks based on the principal eigenvalue of the adjacency matrix. Chaos, 2020, 30, 083118.	1.0	6
74	Multilayer Modularity Belief Propagation to Assess Detectability of Community Structure. SIAM Journal on Mathematics of Data Science, 2020, 2, 872-900.	1.0	2

#	Article	IF	Citations
75	Macroscopic Analysis of Vector Approximate Message Passing in a Model Mismatch Setting. , 2020, , .		4
76	Information-Theoretic and Algorithmic Thresholds for Group Testing. IEEE Transactions on Information Theory, 2020, 66, 7911-7928.	1.5	17
77	Mean-field inference methods for neural networks. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 223002.	0.7	18
78	Optimal Laplacian Regularization for Sparse Spectral Community Detection. , 2020, , .		7
79	Thresholds of descending algorithms in inference problems. Journal of Statistical Mechanics: Theory and Experiment, 2020, 2020, 034004.	0.9	2
80	Marvels and Pitfalls of the Langevin Algorithm in Noisy High-Dimensional Inference. Physical Review X, 2020, 10, .	2.8	13
81	The replica symmetric phase of random constraint satisfaction problems. Combinatorics Probability and Computing, 2020, 29, 346-422.	0.8	4
82	Dense limit of the Dawid–Skene model for crowdsourcing and regions of sub-optimality of message passing algorithms. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 124001.	0.7	1
83	The Satisfiability Threshold For Random Linear Equations. Combinatorica, 2020, 40, 179-235.	0.6	6
84	Blind calibration for compressed sensing: state evolution and an online algorithm. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 334004.	0.7	0
85	The rank of sparse random matrices. , 2020, , 579-591.		7
86	Large deviations of extreme eigenvalues of generalized sample covariance matrices. Europhysics Letters, 2021, 133, 20005.	0.7	2
87	Solving statistical mechanics on sparse graphs with feedback-set variational autoregressive networks. Physical Review E, 2021, 103, 012103.	0.8	5
88	Optimal group testing. Combinatorics Probability and Computing, 2021, 30, 811-848.	0.8	11
89	Understanding Phase Transitions via Mutual Information and MMSE. , 2021, , 197-228.		2
90	Dynamical instantons and activated processes in mean-field glass models. SciPost Physics, 2021, 10, .	1.5	13
91	Local Statistics, Semidefinite Programming, and Community Detection. , 2021, , 1298-1316.		6
92	Low rattling: A predictive principle for self-organization in active collectives. Science, 2021, 371, 90-95.	6.0	44

#	Article	IF	Citations
93	Circumventing spin-glass traps by microcanonical spontaneous symmetry breaking. Physical Review E, 2021, 103, 042112.	0.8	1
94	Exact results on high-dimensional linear regression via statistical physics. Physical Review E, 2021, 103, 042142.	0.8	3
95	Synchronization in 5G networks: a hybrid Bayesian approach toward clock offset/skew estimation and its impact on localization. Eurasip Journal on Wireless Communications and Networking, 2021, 2021, .	1.5	5
96	Quantum field-theoretic machine learning. Physical Review D, 2021, 103, .	1.6	19
97	Frozen 1-RSB structure of the symmetric Ising perceptron. , 2021, , .		14
98	On maximum-likelihood estimation in the all-or-nothing regime. , 2021, , .		0
99	Near-Optimal Coding for Massive Multiple Access. , 2021, , .		2
100	Inferring hidden symmetries of exotic magnets from detecting explicit order parameters. Physical Review E, 2021, 104, 015311.	0.8	3
101	Large deviations in the perceptron model and consequences for active learning. Machine Learning: Science and Technology, 2021, 2, 045001.	2.4	1
102	Nishimori meets Bethe: a spectral method for node classification in sparse weighted graphs. Journal of Statistical Mechanics: Theory and Experiment, 2021, 2021, 093405.	0.9	5
103	Statistical physics and applied geosciences: some results and perspectives. Comptes Rendus Physique, 2020, 21, 539-560.	0.3	1
105	Evaluating Ising Processing Units with Integer Programming. Lecture Notes in Computer Science, 2019, , 163-181.	1.0	13
106	Message-Passing Methods for Complex Contagions. Computational Social Sciences, 2018, , 81-95.	0.4	8
108	Dynamics of stochastic gradient descent for two-layer neural networks in the teacher–student setup*. Journal of Statistical Mechanics: Theory and Experiment, 2020, 2020, 124010.	0.9	16
109	Linear stability analysis of large dynamical systems on random directed graphs. Physical Review Research, 2020, 2, .	1.3	19
110	Algorithmic thresholds for tensor PCA. Annals of Probability, 2020, 48, .	0.8	17
111	Disorder-free spin glass transitions and jamming in exactly solvable mean-field models. SciPost Physics, 2018, 4, .	1.5	15
112	From complex to simple : hierarchical free-energy landscape renormalized in deep neural networks. , 2020, 2, .		5

#	ARTICLE	IF	CITATIONS
113	Boltzmann Machines as Generalized Hopfield Networks: A Review of Recent Results and Outlooks. Entropy, 2021, 23, 34.	1.1	15
114	Approaches Based on the Ising Model. Quantum Science and Technology, 2021, , 273-287.	1.5	0
115	Entropic barriers as a reason for hardness in both classical and quantum algorithms. Physical Review Research, 2021, 3, .	1.3	9
116	Inverse problems for structured datasets using parallel TAP equations and restricted Boltzmann machines. Scientific Reports, 2021, 11, 19990.	1.6	5
117	Bayesian inference of ion velocity distribution function from laser-induced fluorescence spectra. Scientific Reports, 2021, 11, 20810.	1.6	1
118	An Exactly Solvable Model: The Perceptron. Springer Theses, 2019, , 65-113.	0.0	0
119	Beyond the Gaussian Models. Advances in Geographic Information Science, 2020, , 591-643.	0.3	0
120	Construction of simplicial complexes with prescribed degree-size sequences. Physical Review E, 2021, 104, L042303.	0.8	2
121	Belief propagation: accurate marginals or accurate partition function—where is the difference?. Journal of Statistical Mechanics: Theory and Experiment, 2020, 2020, 124009.	0.9	2
122	Mismatching as a tool to enhance algorithmic performances of Monte Carlo methods for the planted clique model. Journal of Statistical Mechanics: Theory and Experiment, 2021, 2021, 113406.	0.9	3
124	Align, then memorise: the dynamics of learning with feedback alignment*. Journal of Physics A: Mathematical and Theoretical, 2022, 55, 044002.	0.7	1
125	Analyticity of the energy in an Ising spin glass with correlated disorder. Journal of Physics A: Mathematical and Theoretical, 2022, 55, 045001.	0.7	0
126	Appearance of Random Matrix Theory in deep learning. Physica A: Statistical Mechanics and Its Applications, 2022, 590, 126742.	1.2	6
127	The Limiting Poisson Law of Massive MIMO Detection With Box Relaxation. IEEE Journal on Selected Areas in Information Theory, 2020, 1, 695-704.	1.9	1
128	A General Framework for the Design of Compressive Sensing using Density Evolution. , 2021, , .		1
129	Inferring a Property of a Large System from a Small Number of Samples. Entropy, 2022, 24, 125.	1.1	1
130	Near-Optimal Sparsity-Constrained Group Testing: Improved Bounds and Algorithms. IEEE Transactions on Information Theory, 2022, 68, 3253-3280.	1.5	3
131	A Residual-Based Message Passing Algorithm for Constraint Satisfaction Problems. Communications in Theoretical Physics, 0, , .	1.1	2

#	Article	IF	Citations
132	Generalized TAP Free Energy. Communications on Pure and Applied Mathematics, 2023, 76, 1329-1415.	1.2	5
133	The emergence of a concept in shallow neural networks. Neural Networks, 2022, 148, 232-253.	3.3	17
134	A Statistical Mechanics PerspectiveÂon Glasses and Aging. , 2021, , 1-68.		8
135	Macroscopic Analysis of Vector Approximate Message Passing in a Model-Mismatched Setting. IEEE Transactions on Information Theory, 2022, 68, 5579-5600.	1.5	4
136	Near-Optimal Coding for Many-User Multiple Access Channels. IEEE Journal on Selected Areas in Information Theory, 2022, 3, 21-36.	1.9	3
137	On statistical inference when fixed points of belief propagation are unstable. , 2022, , .		0
138	Fundamental barriers to high-dimensional regression with convex penalties. Annals of Statistics, 2022, 50, .	1.4	12
139	Annealed averages in spin and matrix models. SciPost Physics, 2022, 12, .	1.5	3
140	The solution space structure of planted constraint satisfaction problems with growing domains. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 033401.	0.9	1
141	Large deviations of semisupervised learning in the stochastic block model. Physical Review E, 2022, 105, 034108.	0.8	0
142	Equivalence between belief propagation instability and transition to replica symmetry breaking in perceptron learning systems. Physical Review Research, 2022, 4, .	1.3	2
143	Random and quasi-random designs in group testing. Journal of Statistical Planning and Inference, 2022, 221, 29-54.	0.4	0
144	Generalisation error in learning with random features and the hidden manifold model*. Journal of Statistical Mechanics: Theory and Experiment, 2021, 2021, 124013.	0.9	14
145	Quantifying relevance in learning and inference. Physics Reports, 2022, 963, 1-43.	10.3	10
146	Notes on Computational Hardness of Hypothesis Testing: Predictions Using the Low-Degree Likelihood Ratio. Springer Proceedings in Mathematics and Statistics, 2022, , 1-50.	0.1	16
147	The rank of sparse random matrices. Random Structures and Algorithms, 0, , .	0.6	1
148	Glasses and Aging, A Statistical Mechanics Perspective on. , 2022, , 229-296.		4
150	Aligning random graphs with a sub-tree similarity message-passing algorithm. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 063401.	0.9	3

#	ARTICLE	IF	CITATIONS
151	Deep learning via message passing algorithms based on belief propagation. Machine Learning: Science and Technology, 2022, 3, 035005.	2.4	2
152	Empirical Risk Minimization with Relative Entropy Regularization: Optimality and Sensitivity Analysis. , 2022, , .		2
153	The Random Number Partitioning Problem: Overlap Gap Property and Algorithmic Barriers. , 2022, , .		0
154	A random energy approach to deep learning. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 073404.	0.9	1
155	Perturbative construction of mean-field equations in extensive-rank matrix factorization and denoising. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 083301.	0.9	9
156	Self-Guided Belief Propagation â€" a Homotopy Continuation Method. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022, , 1-18.	9.7	0
157	Quantum machine learning for chemistry and physics. Chemical Society Reviews, 2022, 51, 6475-6573.	18.7	40
158	Introduction to the dynamics of disordered systems: Equilibrium and gradient descent. Physica A: Statistical Mechanics and Its Applications, 2023, 631, 128152.	1.2	3
159	An Introduction to Machine Learning: a perspective from Statistical Physics. Physica A: Statistical Mechanics and Its Applications, 2023, 631, 128154.	1.2	5
160	Inferring Hidden Structures in Random Graphs. IEEE Transactions on Signal and Information Processing Over Networks, 2022, 8, 855-867.	1.6	3
161	Marginals of a spherical spin glass model with correlated disorder. Electronic Communications in Probability, 2022, 27, .	0.1	1
162	A General Compressive Sensing Construct Using Density Evolution. IEEE Transactions on Signal Processing, 2024, 72, 203-218.	3.2	0
163	Planted XY model: Thermodynamics and inference. Physical Review E, 2022, 106, .	0.8	0
164	Planted matching problems on random hypergraphs. Physical Review E, 2022, 106, .	0.8	0
165	Asymptotic Errors for Teacher-Student Convex Generalized Linear Models (Or: How to Prove) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 182	1.5	8
166	Align, then memorise: the dynamics of learning with feedback alignment*. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 114002.	0.9	1
167	Thermodynamics of the Ising Model Encoded in Restricted Boltzmann Machines. Entropy, 2022, 24, 1701.	1.1	2
168	Learning curves of generic features maps for realistic datasets with a teacher-student model*. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 114001.	0.9	6

#	Article	IF	Citations
169	An analytical theory of curriculum learning in teacher–student networks*. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 114014.	0.9	0
170	Disordered systems insights on computational hardness. Journal of Statistical Mechanics: Theory and Experiment, 2022, 2022, 114015.	0.9	4
171	Intrinsic regularization effect in Bayesian nonlinear regression scaled by observed data. Physical Review Research, 2022, 4, .	1.3	1
172	Free Dynamics of Feature Learning Processes. Journal of Statistical Physics, 2023, 190, .	0.5	0
173	It Was "All" for "Nothing" Sharp Phase Transitions for Noiseless Discrete Channels. IEEE Transactions on Information Theory, 2023, 69, 5188-5202.	1.5	0
174	Learning curves for the multi-class teacher–student perceptron. Machine Learning: Science and Technology, 2023, 4, 015019.	2.4	3
175	Algorithms and Barriers in the Symmetric Binary Perceptron Model. , 2022, , .		5
176	Prediction errors for penalized regressions based on generalized approximate message passing. Journal of Physics A: Mathematical and Theoretical, 2023, 56, 043001.	0.7	0
177	Bayesian reconstruction of memories stored in neural networks from their connectivity. PLoS Computational Biology, 2023, 19, e1010813.	1.5	1
178	Data-driven approximation for extracting the transition dynamics of a genetic regulatory network with non-Gaussian Lévy noise. Journal of Statistical Mechanics: Theory and Experiment, 2023, 2023, 023403.	0.9	0
179	Machine-learning-assisted Monte Carlo fails at sampling computationally hard problems. Machine Learning: Science and Technology, 2023, 4, 010501.	2.4	5
180	Fundamental limits to learning closed-form mathematical models from data. Nature Communications, 2023, 14, .	5.8	4
181	Random fields and up scaling, towards a more predictive probabilistic quantitative hydrogeology. Comptes Rendus - Geoscience, 2023, 355, 559-572.	0.4	1
182	Noisy Group Testing with Side Information. , 2022, , .		3
183	On free energy barriers in Gaussian priors and failure of cold start MCMC for high-dimensional unimodal distributions. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2023, 381, .	1.6	1
184	Mapping state transition susceptibility in quantum annealing. Physical Review Research, 2023, 5, .	1.3	0
185	Limits and Performances of Algorithms Based on Simulated Annealing in Solving Sparse Hard Inference Problems. Physical Review X, 2023, 13, .	2.8	0
195	On the Validation of Gibbs Algorithms: Training Datasets, Test Datasets and their Aggregation. , 2023, , .		3

#	ARTICLE	IF	CITATIONS
196	On Reconstructing the Patient Zero from Sensor Measurements. , 2023, , .		0
201	A Density Evolution Framework for Recovery of Covariance and Causal Graphs from Compressed Measurements. , 2023, , .		0