Liam Paninski

List of Publications by Year
in descending order

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112	14,023	36203	30848
papers	citations	51 h-index	102 g-index

135	135	135	10603
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Instant neural control of a movement signal. Nature, 2002, 416, 141-142.	13.7	1,309
2	Spatio-temporal correlations and visual signalling in a complete neuronal population. Nature, 2008, 454, 995-999.	13.7	1,128
3	Estimation of Entropy and Mutual Information. Neural Computation, 2003, 15, 1191-1253.	1.3	956
4	Simultaneous Denoising, Deconvolution, and Demixing of Calcium Imaging Data. Neuron, 2016, 89, 285-299.	3.8	843
5	Efficient and accurate extraction of in vivo calcium signals from microendoscopic video data. ELife, 2018, 7, .	2.8	489
6	Anxiety Cells in a Hippocampal-Hypothalamic Circuit. Neuron, 2018, 97, 670-683.e6.	3.8	408
7	Fast online deconvolution of calcium imaging data. PLoS Computational Biology, 2017, 13, e1005423.	1.5	407
8	Fast Nonnegative Deconvolution for Spike Train Inference From Population Calcium Imaging. Journal of Neurophysiology, 2010, 104, 3691-3704.	0.9	404
9	Bright and photostable chemigenetic indicators for extended in vivo voltage imaging. Science, 2019, 365, 699-704.	6.0	362
10	Prediction and Decoding of Retinal Ganglion Cell Responses with a Probabilistic Spiking Model. Journal of Neuroscience, 2005, 25, 11003-11013.	1.7	319
11	Spatiotemporal Tuning of Motor Cortical Neurons for Hand Position and Velocity. Journal of Neurophysiology, 2004, 91, 515-532.	0.9	315
12	Functional connectivity in the retina at the resolution of photoreceptors. Nature, 2010, 467, 673-677.	13.7	307
13	Maximum likelihood estimation of cascade point-process neural encoding models. Network: Computation in Neural Systems, 2004, 15, 243-262.	2.2	292
14	Voltage imaging and optogenetics reveal behaviour-dependent changes in hippocampal dynamics. Nature, 2019, 569, 413-417.	13.7	255
15	Statistical models for neural encoding, decoding, and optimal stimulus design. Progress in Brain Research, 2007, 165, 493-507.	0.9	236
16	Maximum Likelihood Estimation of a Stochastic Integrate-and-Fire Neural Encoding Model. Neural Computation, 2004, 16, 2533-2561.	1.3	224
17	Maximum likelihood estimation of cascade point-process neural encoding models. , 0, .		222
18	Maximum likelihood estimation of cascade point-process neural encoding models. Network: Computation in Neural Systems, 2004, 15, 243-62.	2.2	210

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19	Simultaneous Multi-plane Imaging of Neural Circuits. Neuron, 2016, 89, 269-284.	3.8	209
20	Spike Inference from Calcium Imaging Using Sequential Monte Carlo Methods. Biophysical Journal, 2009, 97, 636-655.	0.2	197
21	The Spatiotemporal Organization of the Striatum Encodes Action Space. Neuron, 2017, 95, 1171-1180.e7.	3.8	192
22	Cerebellar granule cells acquire a widespread predictive feedback signal during motor learning. Nature Neuroscience, 2017, 20, 727-734.	7.1	182
23	A new look at state-space models for neural data. Journal of Computational Neuroscience, 2010, 29, 107-126.	0.6	165
24	The central amygdala controls learning in the lateral amygdala. Nature Neuroscience, 2017, 20, 1680-1685.	7.1	159
25	NeuroPAL: A Multicolor Atlas for Whole-Brain Neuronal Identification in C.Âelegans. Cell, 2021, 184, 272-288.e11.	13.5	132
26	Model-Based Decoding, Information Estimation, and Change-Point Detection Techniques for Multineuron Spike Trains. Neural Computation, 2011, 23, 1-45.	1.3	123
27	Community-based benchmarking improves spike rate inference from two-photon calcium imaging data. PLoS Computational Biology, 2018, 14, e1006157.	1.5	118
28	Convergence properties of three spike-triggered analysis techniques. Network: Computation in Neural Systems, 2003, 14, 437-464.	2.2	114
29	Efficient Estimation of Detailed Single-Neuron Models. Journal of Neurophysiology, 2006, 96, 872-890.	0.9	112
30	Superlinear Population Encoding of Dynamic Hand Trajectory in Primary Motor Cortex. Journal of Neuroscience, 2004, 24, 8551-8561.	1.7	109
31	Population-Level Representation of a Temporal Sequence Underlying Song Production in the Zebra Finch. Neuron, 2016, 90, 866-876.	3.8	109
32	A Generalized Linear Model for Estimating Spectrotemporal Receptive Fields from Responses to Natural Sounds. PLoS ONE, 2011, 6, e16104.	1.1	103
33	A Coincidence-Based Test for Uniformity Given Very Sparsely Sampled Discrete Data. IEEE Transactions on Information Theory, 2008, 54, 4750-4755.	1.5	99
34	Rapid mesoscale volumetric imaging of neural activity with synaptic resolution. Nature Methods, 2020, 17, 291-294.	9.0	99
35	Exact Hamiltonian Monte Carlo for Truncated Multivariate Gaussians. Journal of Computational and Graphical Statistics, 2014, 23, 518-542.	0.9	96
36	Efficient Coding of Spatial Information in the Primate Retina. Journal of Neuroscience, 2012, 32, 16256-16264.	1.7	94

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37	Modeling the impact of common noise inputs on the network activity of retinal ganglion cells. Journal of Computational Neuroscience, 2012, 33, 97-121.	0.6	94
38	Sequential Optimal Design of Neurophysiology Experiments. Neural Computation, 2009, 21, 619-687.	1.3	92
39	Common-input models for multiple neural spike-train data. Network: Computation in Neural Systems, 2007, 18, 375-407.	2.2	91
40	Complementary networks of cortical somatostatin interneurons enforce layer specific control. ELife, 2019, 8, .	2.8	89
41	Reconstruction of neocortex: Organelles, compartments, cells, circuits, and activity. Cell, 2022, 185, 1082-1100.e24.	13.5	84
42	Asymptotic Theory of Information-Theoretic Experimental Design. Neural Computation, 2005, 17, 1480-1507.	1.3	80
43	Spatiotemporal receptive fields of barrel cortex revealed by reverse correlation of synaptic input. Nature Neuroscience, 2014, 17, 866-875.	7.1	80
44	A Bayesian approach for inferring neuronal connectivity from calcium fluorescent imaging data. Annals of Applied Statistics, 2011, 5, .	0.5	79
45	Mapping nonlinear receptive field structure in primate retina at single cone resolution. ELife, 2015, 4, .	2.8	77
46	Smoothing of, and Parameter Estimation from, Noisy Biophysical Recordings. PLoS Computational Biology, 2009, 5, e1000379.	1.5	74
47	Population decoding of motor cortical activity using a generalized linear model with hidden states. Journal of Neuroscience Methods, 2010, 189, 267-280.	1.3	74
48	Linear Encoding of Muscle Activity in Primary Motor Cortex and Cerebellum. Journal of Neurophysiology, 2006, 96, 2578-2592.	0.9	73
49	Convergence properties of three spike-triggered analysis techniques. Network: Computation in Neural Systems, 2003, 14, 437-64.	2.2	72
50	Temporal Precision in the Visual Pathway through the Interplay of Excitation and Stimulus-Driven Suppression. Journal of Neuroscience, 2011, 31, 11313-11327.	1.7	71
51	Kalman filter mixture model for spike sorting of non-stationary data. Journal of Neuroscience Methods, 2011, 196, 159-169.	1.3	70
52	Inferring input nonlinearities in neural encoding models. Network: Computation in Neural Systems, 2008, 19, 35-67.	2.2	69
53	Neural Decoding of Hand Motion Using a Linear State-Space Model With Hidden States. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2009, 17, 370-378.	2.7	62
54	Bayesian Sparse Regression Analysis Documents the Diversity of Spinal Inhibitory Interneurons. Cell, 2016, 165, 220-233.	13.5	59

#	Article	IF	Citations
55	Reinforcement Learning Recruits Somata and Apical Dendrites across Layers of Primary Sensory Cortex. Cell Reports, 2019, 26, 2000-2008.e2.	2.9	59
56	Hidden Markov Models for the Stimulus-Response Relationships of Multistate Neural Systems. Neural Computation, 2011, 23, 1071-1132.	1.3	57
57	Convergence properties of three spike-triggered analysis techniques. Network: Computation in Neural Systems, 2003, 14, 437-464.	2.2	54
58	Primacy of Flexor Locomotor Pattern Revealed by Ancestral Reversion of Motor Neuron Identity. Cell, 2015, 162, 338-350.	13.5	54
59	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. PLoS Computational Biology, 2020, 16, e1007791.	1.5	52
60	Designing optimal stimuli to control neuronal spike timing. Journal of Neurophysiology, 2011, 106, 1038-1053.	0.9	47
61	Inferring synaptic inputs given a noisy voltage trace via sequential Monte Carlo methods. Journal of Computational Neuroscience, 2012, 33, 1-19.	0.6	46
62	Efficient Markov Chain Monte Carlo Methods for Decoding Neural Spike Trains. Neural Computation, 2011, 23, 46-96.	1.3	45
63	Bayesian spike inference from calcium imaging data. , 2013, , .		44
64	Electrical stimulus artifact cancellation and neural spike detection on large multi-electrode arrays. PLoS Computational Biology, 2017, 13, e1005842.	1.5	44
65	Mean-Field Approximations for Coupled Populations of Generalized Linear Model Spiking Neurons with Markov Refractoriness. Neural Computation, 2009, 21, 1203-1243.	1.3	41
66	Chronic, cortex-wide imaging of specific cell populations during behavior. Nature Protocols, 2021, 16, 3241-3263.	5.5	41
67	Efficient "Shotgun" Inference of Neural Connectivity from Highly Sub-sampled Activity Data. PLoS Computational Biology, 2015, 11, e1004464.	1.5	39
68	Multi-scale approaches for high-speed imaging and analysis of large neural populations. PLoS Computational Biology, 2017, 13, e1005685.	1.5	35
69	The most likely voltage path and large deviations approximations for integrate-and-fire neurons. Journal of Computational Neuroscience, 2006, 21, 71-87.	0.6	33
70	Efficient computation of the maximum a posteriori path and parameter estimation in integrate-and-fire and more general state-space models. Journal of Computational Neuroscience, 2010, 29, 89-105.	0.6	33
71	A low-noise, single-photon avalanche diode in standard 0.13â€‚Î¼m complementary metal-oxide-semiconductor process. Applied Physics Letters, 2010, 97, .	1.5	33
72	Imaging Action Potentials with Calcium Indicators. Cold Spring Harbor Protocols, 2011, 2011, pdb.prot5650.	0.2	33

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73	State-Space Decoding of Goal-Directed Movements. IEEE Signal Processing Magazine, 2008, 25, 78-86.	4.6	30
74	Efficient, adaptive estimation of two-dimensional firing rate surfaces via Gaussian process methods. Network: Computation in Neural Systems, 2010, 21, 142-168.	2.2	30
75	Incorporating Naturalistic Correlation Structure Improves Spectrogram Reconstruction from Neuronal Activity in the Songbird Auditory Midbrain. Journal of Neuroscience, 2011, 31, 3828-3842.	1.7	30
76	A generalized linear model of the impact of direct and indirect inputs to the lateral geniculate nucleus. Journal of Vision, 2010, 10, 22-22.	0.1	28
77	The Spike-Triggered Average of the Integrate-and-Fire Cell Driven by Gaussian White Noise. Neural Computation, 2006, 18, 2592-2616.	1.3	26
78	Comparing integrate-and-fire models estimated using intracellular and extracellular data. Neurocomputing, 2005, 65-66, 379-385.	3.5	24
79	Fast Kalman filtering on quasilinear dendritic trees. Journal of Computational Neuroscience, 2010, 28, 211-228.	0.6	24
80	High-fidelity estimates of spikes and subthreshold waveforms from 1-photon voltage imaging inÂvivo. Cell Reports, 2021, 35, 108954.	2.9	24
81	Encoder-Decoder Optimization for Brain-Computer Interfaces. PLoS Computational Biology, 2015, 11, e1004288.	1.5	23
82	EMG Prediction From Motor Cortical Recordings via a Nonnegative Point-Process Filter. IEEE Transactions on Biomedical Engineering, 2012, 59, 1829-1838.	2.5	21
83	Fast inference in generalized linear models via expected log-likelihoods. Journal of Computational Neuroscience, 2014, 36, 215-234.	0.6	21
84	Fast Kalman Filtering and Forwardâ€“Backward Smoothing via a Low-Rank Perturbative Approach. Journal of Computational and Graphical Statistics, 2014, 23, 316-339.	0.9	21
85	Partitioning variability in animal behavioral videos using semi-supervised variational autoencoders. PLoS Computational Biology, 2021, 17, e1009439.	1.5	21
86	Noise-driven adaptation: in vitro and mathematical analysis. Neurocomputing, 2003, 52-54, 877-883.	3.5	19
87	A Bayesian compressed-sensing approach for reconstructing neural connectivity from subsampled anatomical data. Journal of Computational Neuroscience, 2012, 33, 371-388.	0.6	18
88	Undersmoothed Kernel Entropy Estimators. IEEE Transactions on Information Theory, 2008, 54, 4384-4388.	1.5	17
89	Integral equation methods for computing likelihoods and their derivatives in the stochastic integrate-and-fire model. Journal of Computational Neuroscience, 2008, 24, 69-79.	0.6	16
90	Automating the design of informative sequences of sensory stimuli. Journal of Computational Neuroscience, 2011, 30, 181-200.	0.6	16

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91	BARcode DEmixing through Non-negative Spatial Regression (BarDensr). PLoS Computational Biology, 2021, 17, e1008256.	1.5	16
92	Bayesian methods for event analysis of intracellular currents. Journal of Neuroscience Methods, 2016, 269, 21-32.	1.3	14
93	Optimal experimental design for sampling voltage on dendritic trees in the low-SNR regime. Journal of Computational Neuroscience, 2012, 32, 347-366.	0.6	13
94	Fast state-space methods for inferring dendritic synaptic connectivity. Journal of Computational Neuroscience, 2014, 36, 415-443.	0.6	13
95	Fast Spatiotemporal Smoothing of Calcium Measurements in Dendritic Trees. PLoS Computational Biology, 2012, 8, e1002569.	1.5	10
96	Neuroprosthetic Decoder Training as Imitation Learning. PLoS Computational Biology, 2016, 12, e1004948.	1.5	8
97	On Quadrature Methods for Refractory Point Process Likelihoods. Neural Computation, 2014, 26, 2790-2797.	1.3	7
98	Visualizing the organization and differentiation of the male-specific nervous system of C. elegans. Development (Cambridge), 2021, 148, .	1.2	7
99	Efficient methods for sampling spike trains in networks of coupled neurons. Annals of Applied Statistics, 2011, 5, .	0.5	6
100	Computing loss of efficiency in optimal Bayesian decoders given noisy or incomplete spike trains. Network: Computation in Neural Systems, 2013, 24, 75-98.	2.2	4
101	Demixing Calcium Imaging Data in C. elegans via Deformable Non-negative Matrix Factorization. Lecture Notes in Computer Science, 2020, , 14-24.	1.0	3
102	The relationship between optimal and biologically plausible decoding of stimulus velocity in the retina. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2009, 26, B25.	0.8	2
103	Non-parametric Vignetting Correction for Sparse Spatial Transcriptomics Images. Lecture Notes in Computer Science, 2021, 12908, 466-475.	1.0	2
104	Blind demixing methods for recovering dense neuronal morphology from barcode imaging data. PLoS Computational Biology, 2022, 18, e1009991.	1.5	2
105	Efficient model-based design of neurophysiological experiments. , 2006, 2006, 599-602.		1
106	Robust particle filters via sequential pairwise reparameterized Gibbs sampling. , 2012, , .		1
107	Robust and scalable Bayesian analysis of spatial neural tuning function data. Annals of Applied Statistics, 2017, 11, .	0.5	1
108	A new method to analyze the variations of neural tuning and its application to primate V1. Journal of Vision, 2019, 19, 271b.	0.1	0

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109	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
110	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
111	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0
112	Localized semi-nonnegative matrix factorization (LocaNMF) of widefield calcium imaging data. , 2020, 16, e1007791.		0