William W Lytton

List of Publications by Year
in descending order

119 papers	3,584 citations	185998 28 h-index	174990 52 g-index
140 all docs	140 docs citations	140 times ranked	3096 citing authors

#	Article	IF	Citations
1	Integrating machine learning and multiscale modelingâ€”perspectives, challenges, and opportunities in the biological, biomedical, and behavioral sciences. Npj Digital Medicine, 2019, 2, 115.	5.7	319
2	Computer modelling of epilepsy. Nature Reviews Neuroscience, 2008, 9, 626-637.	4.9	247
3	Unmasking the CA1 Ensemble Place Code by Exposures to Small and Large Environments: More Place Cells and Multiple, Irregularly Arranged, and Expanded Place Fields in the Larger Space. Journal of Neuroscience, 2008, 28, 11250-11262.	1.7	194
4	Parallel network simulations with NEURON. Journal of Computational Neuroscience, 2006, 21, 119-129.	0.6	170
5	Multiscale Modeling Meets Machine Learning: What Can We Learn?. Archives of Computational Methods in Engineering, 2021, 28, 1017-1037.	6.0	164
6	Attention-Like Modulation of Hippocampus Place Cell Discharge. Journal of Neuroscience, 2010, 30, 4613-4625.	1.7	144
7	Ketamine Disrupts Theta Modulation of Gamma in a Computer Model of Hippocampus. Journal of Neuroscience, 2011, 31, 11733-11743.	1.7	125
8	NetPyNE, a tool for data-driven multiscale modeling of brain circuits. ELife, 2019, 8, .	2.8	109
9	Dynamic Interactions Determine Partial Thalamic Quiescence in a Computer Network Model of Spike-and-Wave Seizures. Journal of Neurophysiology, 1997, 77, 1679-1696.	0.9	82
10	Burst firing in identified rat geniculate interneurons. Neuroscience, 1999, 91, 1445-1460.	1.1	82
11	Reaction-diffusion in the NEURON simulator. Frontiers in Neuroinformatics, 2013, 7, 28.	1.3	65
12	An Intrinsic Oscillation in Interneurons of the Rat Lateral Geniculate Nucleus. Journal of Neurophysiology, 1999, 81, 702-711.	0.9	64
13	Emergence of Physiological Oscillation Frequencies in a Computer Model of Neocortex. Frontiers in Computational Neuroscience, 2011, 5, 19.	1.2	63
14	Synaptic information transfer in computer models of neocortical columns. Journal of Computational Neuroscience, 2011, 30, 69-84.	0.6	62
15	Open Source Brain: A Collaborative Resource for Visualizing, Analyzing, Simulating, and Developing Standardized Models of Neurons and Circuits. Neuron, 2019, 103, 395-411.e5.	3.8	56
16	Credible practice of modeling and simulation in healthcare: ten rules from a multidisciplinary perspective. Journal of Translational Medicine, 2020, 18, 369.	1.8	56
17	Control of slow oscillations in the thalamocortical neuron: a computer model. Neuroscience, 1996, 70, 673-684.	1.1	49
18	Optimizing Synaptic Conductance Calculation for Network Simulations. Neural Computation, 1996, 8, 501-509.	1.3	44

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19	Cortical information flow in Parkinson's disease: a composite network/field model. Frontiers in Computational Neuroscience, 2013, 7, 39.	1.2	43
20	Reproducibility in Computational Neuroscience Models and Simulations. IEEE Transactions on Biomedical Engineering, 2016, 63, 2021-2035.	2.5	43
21	Simulation Neurotechnologies for Advancing Brain Research: Parallelizing Large Networks in NEURON. Neural Computation, 2016, 28, 2063-2090.	1.3	40
22	Independent Variable Time-Step Integration of Individual Neurons for Network Simulations. Neural Computation, 2005, 17, 903-921.	1.3	39
23	Optimizing computer models of corticospinal neurons to replicate in vitro dynamics. Journal of Neurophysiology, 2017, 117, 148-162.	0.9	37
24	Reinforcement Learning of Two-Joint Virtual Arm Reaching in a Computer Model of Sensorimotor Cortex. Neural Computation, 2013, 25, 3263-3293.	1.3	36
25	Credibility, Replicability, and Reproducibility in Simulation for Biomedicine and Clinical Applications in Neuroscience. Frontiers in Neuroinformatics, 2018, 12, 18.	1.3	36
26	Cortical Plasticity Induced by Spike-Triggered Microstimulation in Primate Somatosensory Cortex. PLoS ONE, 2013, 8, e57453.	1.1	35
27	Rule-based firing for network simulations. Neurocomputing, 2006, 69, 1160-1164.	3.5	33
28	Tonic-Clonic Transitions in Computer Simulation. Journal of Clinical Neurophysiology, 2007, 24, 175-181.	0.9	33
29	Multiscale modeling in the clinic: diseases of the brain and nervous system. Brain Informatics, 2017, 4, 219-230.	1.8	33
30	Reinforcement Learning of Targeted Movement in a Spiking Neuronal Model of Motor Cortex. PLoS ONE, 2012, 7, e47251.	1.1	33
31	Ih Tunes Theta/Gamma Oscillations and Cross-Frequency Coupling In an In Silico CA3 Model. PLoS ONE, 2013, 8, e76285.	1.1	33
32	Restoring Behavior via Inverse Neurocontroller in a Lesioned Cortical Spiking Model Driving a Virtual Arm. Frontiers in Neuroscience, 2016, 10, 28.	1.4	32
33	Using NEURON for Reaction-Diffusion Modeling of Extracellular Dynamics. Frontiers in Neuroinformatics, 2018, 12, 41.	1.3	32
34	Neuronal Calcium Wave Propagation Varies with Changes in Endoplasmic Reticulum Parameters: A Computer Model. Neural Computation, 2015, 27, 898-924.	1.3	31
35	Calcium regulation of HCN channels supports persistent activity in a multiscale model of neocortex. Neuroscience, 2016, 316, 344-366.	1.1	31
36	Computer models of hippocampal circuit changes of the kindling model of epilepsy. Artificial Intelligence in Medicine, 1998, 13, 81-97.	3.8	30

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37	Electrostimulation to reduce synaptic scaling driven progression of Alzheimer's disease. Frontiers in Computational Neuroscience, 2014, 8, 39.	1.2	30
38	Just-in-Time Connectivity for Large Spiking Networks. Neural Computation, 2008, 20, 2745-2756.	1.3	29
39	Measuring the Quality of Neuronal Identification in Ensemble Recordings. Journal of Neuroscience, 2011, 31, 16398-16409.	1.7	29
40	Multitarget Multiscale Simulation for Pharmacological Treatment of Dystonia in Motor Cortex. Frontiers in Pharmacology, 2016, 7, 157.	1.6	29
41	Properties of a hyperpolarization-activated cation current in interneurons in the rat lateral geniculate nucleus. Neuroscience, 1999, 92, 445-457.	1.1	27
42	Electrostimulation as a Prosthesis for Repair of Information Flow in a Computer Model of Neocortex. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2012, 20, 153-160.	2.7	24
43	Cortical Spiking Network Interfaced with Virtual Musculoskeletal Arm and Robotic Arm. Frontiers in Neurorobotics, 2015, 9, 13.	1.6	22
44	Multiscale Computer Model of the Spinal Dorsal Horn Reveals Changes in Network Processing Associated with Chronic Pain. Journal of Neuroscience, 2022, 42, 3133-3149.	1.7	22
45	Computer model of ethosuximide's effect on a thalamic neuron. Annals of Neurology, 1992, 32, 131-139.	2.8	21
46	Neural Query System: Data-Mining From Within the NEURON Simulator. Neuroinformatics, 2006, 4, 163-176.	1.5	20
47	The Spectrum of Mechanism-Oriented Models and Methods for Explanations of Biological Phenomena. Processes, 2018, 6, 56.	1.3	19
48	Motor Cortex Microcircuit Simulation Based on Brain Activity Mapping. Neural Computation, 2014, 26, 1239-1262.	1.3	18
49	Computer model of passive signal integration based on whole-cellin vitrostudies of rat lateral geniculate nucleus. European Journal of Neuroscience, 2003, 17, 1531-1541.	1.2	17
50	Photic-Induced Sensitization: Acquisition of an Augmenting Spike-Wave Response in the Adult Rat Through Repeated Strobe Exposure. Journal of Neurophysiology, 2005, 94, 3925-3937.	0.9	16
51	Computer simulation of epilepsy: Implications for seizure spread and behavioral dysfunction. Epilepsy and Behavior, 2005, 7, 336-344.	0.9	16
52	Water-tight membranes from neuronal morphology files. Journal of Neuroscience Methods, 2013, 220, 167-178.	1.3	16
53	Modeling Molecular Pathways of Neuronal Ischemia. Progress in Molecular Biology and Translational Science, 2014, 123, 249-275.	0.9	16
54	Modeling pathogenesis and treatment response in childhood absence epilepsy. Epilepsia, 2018, 59, 135-145.	2.6	16

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55	Modernizing the NEURON Simulator for Sustainability, Portability, and Performance. Frontiers in Neuroinformatics, 0, 16, .	1.3	16
56	Local axon collaterals of area CA1 support spread of epileptiform discharges within CA1, but propagation is unidirectional. Hippocampus, 2008, 18, 1021-1033.	0.9	15
57	Interictal EEG Discoordination in a Rat Seizure Model. Journal of Clinical Neurophysiology, 2010, 27, 438-444.	0.9	15
58	Towards a real-time interface between a biomimetic model of sensorimotor cortex and a robotic arm. Pattern Recognition Letters, 2014, 36, 204-212.	2.6	15
59	Embedded ensemble encoding hypothesis: The role of the â€œPreparedâ€•cell. Journal of Neuroscience Research, 2018, 96, 1543-1559.	1.3	15
60	Perisaccadic Parietal and Occipital Gamma Power in Light and in Complete Darkness. Perception, 2008, 37, 419-432.	0.5	14
61	Tracking recurrence of correlation structure in neuronal recordings. Journal of Neuroscience Methods, 2017, 275, 1-9.	1.3	14
62	Local glutamate-mediated dendritic plateau potentials change the state of the cortical pyramidal neuron. Journal of Neurophysiology, 2021, 125, 23-42.	0.9	14
63	Localization of a leech inhibitory synapse by photo-ablation of individual dendrites. Brain Research, 1989, 504, 43-48.	1.1	13
64	The virtual slice setup. Journal of Neuroscience Methods, 2008, 171, 309-315.	1.3	13
65	Dynamically Repairing and Replacing Neural Networks: Using Hybrid Computational and Biological Tools. IEEE Pulse, 2012, 3, 57-59.	0.1	13
66	Computer model of antiepileptic effects mediated by alterations in GABAA-mediated inhibition. NeuroReport, 1998, 9, 691-696.	0.6	12
67	Measurement of Peripheral Vision Reaction Time Identifies White Matter Disruption in Patients with Mild Traumatic Brain Injury. Journal of Neurotrauma, 2017, 34, 1539-1545.	1.7	12
68	NTW-MT. , 2015, , .		11
69	â– REVIEW : Computer Models of Stroke Recovery: Implications for Neurorehabilitation. Neuroscientist, 1999, 5, 100-111.	2.6	10
70	Multiscale modeling for clinical translation in neuropsychiatric disease. Journal of Computational Surgery, 2014, 1, .	0.6	9
71	Computer modeling for pharmacological treatments for dystonia. Drug Discovery Today: Disease Models, 2016, 19, 51-57.	1.2	9
72	Multithreaded Stochastic PDES for Reactions and Diffusions in Neurons. ACM Transactions on Modeling and Computer Simulation, 2017, 27, 1-27.	0.6	9

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73	Amyloid pathologyâ€produced unexpected modifications of calcium homeostasis in hippocampal subicular dendrites. Alzheimer's and Dementia, 2020, 16, 251-261.	0.4	9
74	Effects of I_h and TASK-like shunting current on dendritic impedance in layer 5 pyramidal-tract neurons. Journal of Neurophysiology, 2021, 125, 1501-1516.	0.9	9
75	Adapting a feedforward heteroassociative network to Hodgkin-Huxley dynamics. Journal of Computational Neuroscience, 1998, 5, 353-364.	0.6	8
76	Chapter 12 Unmasking unmasked: neural dynamics following stroke. Progress in Brain Research, 1999, 121, 203-218.	0.9	8
77	Virtual musculoskeletal arm and robotic arm driven by a biomimetic model of sensorimotor cortex with reinforcement learning. , 2013, , .		8
78	In silico hippocampal modeling for multi-target pharmacotherapy in schizophrenia. NPJ Schizophrenia, 2020, 6, 25.	2.0	8
79	Training oscillatory dynamics with spike-timing-dependent plasticity in a computer model of neocortex. , 2011, , .		7
80	Input-to-output transformation in a model of the rat hippocampal CA1 network. Frontiers in Computational Neuroscience, 2012, 6, 57.	1.2	6
81	Towards real-time communication between in vivo neurophysiological data sources and simulator-based brain biomimetic models. Journal of Computational Surgery, 2014, 1, 1-23.	0.6	6
82	Computer modeling of ischemic stroke. Scholarpedia Journal, 2015, 10, 32015.	0.3	6
83	Repairing lesions via kernel adaptive inverse control in a biomimetic model of sensorimotor cortex. , 2015, , .		6
84	Computer modeling of ischemic stroke. Drug Discovery Today: Disease Models, 2016, 19, 77-83.	1.2	6
85	Simulating Large-scale Models of Brain Neuronal Circuits using Google Cloud Platform. , 2020, 2020, 505-509.		6
86	Computer model of clonazepamÊ¼s effect in thalamic slice. NeuroReport, 1997, 8, 3339-3343.	0.6	5
87	Inhibition can disrupt hypersynchrony in model neuronal networks. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 1997, 21, 735-750.	2.5	5
88	Hybrid neural networks - combining abstract and realistic neural units. , 2004, 2004, 3996-8.		5
89	Broadening of Activity with Flow across Neural Structures. Perception, 2008, 37, 401-407.	0.5	5
90	Calcium regulation of HCN supports persistent activity associated with working memory: a multiscale model of prefrontal cortex. BMC Neuroscience, 2014, 15, .	0.8	5

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91	Computers, causality and cure in epilepsy. Brain, 2017, 140, 516-526.	3.7	5
92	NetPyNE Implementation and Scaling of the Potjans-Diesmann Cortical Microcircuit Model. Neural Computation, 2021, 33, 1993-2032.	1.3	5
93	Data Mining Through Simulation. Methods in Molecular Biology, 2007, 401, 155-166.	0.4	5
94	Realistic single-neuron modeling. Seminars in Neuroscience, 1992, 4, 15-25.	2.3	4
95	Alternating dominance of NMDA and AMPA for learning and recall: a computer model. NeuroReport, 2001, 12, 2503-2507.	0.6	4
96	Computer modeling of epilepsy: opportunities for drug discovery. Drug Discovery Today: Disease Models, 2016, 19, 27-30.	1.2	4
97	Parallel Stochastic Discrete Event Simulation of Calcium Dynamics in Neuron. IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2019, 16, 1007-1019.	1.9	4
98	Data-Mining of Time-Domain Features from Neural Extracellular Field Data. Studies in Computational Intelligence, 2008, , 119-140.	0.7	4
99	Training a spiking neuronal network model of visual-motor cortex to play a virtual racket-ball game using reinforcement learning. PLoS ONE, 2022, 17, e0265808.	1.1	4
100	Modeling Thalamocortical Oscillations. Cerebral Cortex, 1999, , 479-509.	0.6	3
101	Load balancing for multi-threaded PDES of stochastic reaction-diffusion in neurons. Journal of Simulation, 2017, 11, 267-284.	1.0	3
102	Spectral Method and High-Order Finite Differences for the Nonlinear Cable Equation. Neural Computation, 2010, 22, 2113-2136.	1.3	2
103	CPP alters theta/gamma oscillations in rat hippocampus: simulation and experiment. BMC Neuroscience, 2012, 13, .	0.8	2
104	Neuron Time Warp. , 2014, , .		2
105	Network-level effects of optogenetic stimulation in a computer model of macaque primary motor cortex. BMC Neuroscience, 2014, 15, .	0.8	2
106	Large-scale M1 microcircuit model with plastic input connections from biological PMd neurons used for prosthetic arm control. BMC Neuroscience, 2015, 16, .	0.8	2
107	Computational Intelligence in Electrophysiology: Trends and Open Problems. Studies in Computational Intelligence, 2008, , 325-359.	0.7	2
108	Science Education in the Preclinical Curriculum. Archives of Internal Medicine, 1988, 148, 2508.	4.3	1

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109	Computational Neuroscience of Synapses and Neurons. , 2013, , 2275-2299.		1
110	Simulation of Large Networks. , 2008, , 3-17.		1
111	Interlaminar Granger causality and alpha oscillations in a model of macaque cortex. BMC Neuroscience, 2011, 12, .	0.8	0
112	Simulating the spread of activation in neocortical circuits. BMC Neuroscience, 2011, 12, .	0.8	0
113	Ih modulates theta rhythm and synchrony in computer model of CA3. BMC Neuroscience, 2012, 13, .	0.8	0
114	Multiscale modeling of cortical information flow in Parkinson's disease. BMC Neuroscience, 2013, 14, .	0.8	0
115	Computational Neuroscience of Neuronal Networks. , 2013, , 2301-2331.		0
116	Neocortical Simulation for Epilepsy Surgery Guidance: Localization and Intervention. , 2014, , 339-349.		0
117	Optimizations for Neuron Time Warp(NTW) for stochastic reaction-diffusion models of neurons. , 2017, , .		0
118	Computational Neuroscience of Synapses and Neurons. , 2016, , 3011-3035.		0
119	Computational Neuroscience of Neuronal Networks. , 2016, , 3049-3080.		0