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	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
2	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
3	Multiscale Modeling Meets Machine Learning: What Can We Learn?. Archives of Computational Methods in Engineering, 2021, 28, 1017-1037.	6.0	164
4	Local glutamate-mediated dendritic plateau potentials change the state of the cortical pyramidal neuron. Journal of Neurophysiology, 2021, 125, 23-42.	0.9	14
5	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
6	NetPyNE Implementation and Scaling of the Potjans-Diesmann Cortical Microcircuit Model. Neural Computation, 2021, 33, 1993-2032.	1.3	5
7	Amyloid pathologyâ€produced unexpected modifications of calcium homeostasis in hippocampal subicular dendrites. Alzheimer's and Dementia, 2020, 16, 251-261.	0.4	9
8	In silico hippocampal modeling for multi-target pharmacotherapy in schizophrenia. NPJ Schizophrenia, 2020, 6, 25.	2.0	8
9	Credible practice of modeling and simulation in healthcare: ten rules from a multidisciplinary perspective. Journal of Translational Medicine, 2020, 18, 369.	1.8	56
10	Simulating Large-scale Models of Brain Neuronal Circuits using Google Cloud Platform. , 2020, 2020, 505-509.		6
11	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
12	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
13	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
14	NetPyNE, a tool for data-driven multiscale modeling of brain circuits. ELife, 2019, 8, .	2.8	109
15	Embedded ensemble encoding hypothesis: The role of the â€œPreparedâ€•cell. Journal of Neuroscience Research, 2018, 96, 1543-1559.	1.3	15
16	Modeling pathogenesis and treatment response in childhood absence epilepsy. Epilepsia, 2018, 59, 135-145.	2.6	16
17	Using NEURON for Reaction-Diffusion Modeling of Extracellular Dynamics. Frontiers in Neuroinformatics, 2018, 12, 41.	1.3	32
18	Credibility, Replicability, and Reproducibility in Simulation for Biomedicine and Clinical Applications in Neuroscience. Frontiers in Neuroinformatics, 2018, 12, 18.	1.3	36

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19	The Spectrum of Mechanism-Oriented Models and Methods for Explanations of Biological Phenomena. Processes, 2018, 6, 56.	1.3	19
20	Optimizing computer models of corticospinal neurons to replicate in vitro dynamics. Journal of Neurophysiology, 2017, 117, 148-162.	0.9	37
21	Multiscale modeling in the clinic: diseases of the brain and nervous system. Brain Informatics, 2017, 4, 219-230.	1.8	33
22	Multithreaded Stochastic PDES for Reactions and Diffusions in Neurons. ACM Transactions on Modeling and Computer Simulation, 2017, 27, 1-27.	0.6	9
23	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
24	Load balancing for multi-threaded PDES of stochastic reaction-diffusion in neurons. Journal of Simulation, 2017, 11, 267-284.	1.0	3
25	Computers, causality and cure in epilepsy. Brain, 2017, 140, 516-526.	3.7	5
26	Tracking recurrence of correlation structure in neuronal recordings. Journal of Neuroscience Methods, 2017, 275, 1-9.	1.3	14
27	Optimizations for Neuron Time Warp(NTW) for stochastic reaction-diffusion models of neurons. , 2017, , .		0
28	Restoring Behavior via Inverse Neurocontroller in a Lesioned Cortical Spiking Model Driving a Virtual Arm. Frontiers in Neuroscience, 2016, 10, 28.	1.4	32
29	Multitarget Multiscale Simulation for Pharmacological Treatment of Dystonia in Motor Cortex. Frontiers in Pharmacology, 2016, 7, 157.	1.6	29
30	Computer modeling of ischemic stroke. Drug Discovery Today: Disease Models, 2016, 19, 77-83.	1.2	6
31	Simulation Neurotechnologies for Advancing Brain Research: Parallelizing Large Networks in NEURON. Neural Computation, 2016, 28, 2063-2090.	1.3	40
32	Computer modeling for pharmacological treatments for dystonia. Drug Discovery Today: Disease Models, 2016, 19, 51-57.	1.2	9
33	Computer modeling of epilepsy: opportunities for drug discovery. Drug Discovery Today: Disease Models, 2016, 19, 27-30.	1.2	4
34	Calcium regulation of HCN channels supports persistent activity in a multiscale model of neocortex. Neuroscience, 2016, 316, 344-366.	1.1	31
35	Reproducibility in Computational Neuroscience Models and Simulations. IEEE Transactions on Biomedical Engineering, 2016, 63, 2021-2035.	2.5	43
36	Computational Neuroscience of Synapses and Neurons. , 2016, , 3011-3035.		0

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37	Computational Neuroscience of Neuronal Networks. , 2016, , 3049-3080.		0
38	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
39	Cortical Spiking Network Interfaced with Virtual Musculoskeletal Arm and Robotic Arm. Frontiers in Neurorobotics, 2015, 9, 13.	1.6	22
40	Computer modeling of ischemic stroke. Scholarpedia Journal, 2015, 10, 32015.	0.3	6
41	Neuronal Calcium Wave Propagation Varies with Changes in Endoplasmic Reticulum Parameters: A Computer Model. Neural Computation, 2015, 27, 898-924.	1.3	31
42	NTW-MT. , 2015, , .		11
43	Repairing lesions via kernel adaptive inverse control in a biomimetic model of sensorimotor cortex. , 2015, , .		6
44	Electrostimulation to reduce synaptic scaling driven progression of Alzheimer's disease. Frontiers in Computational Neuroscience, 2014, 8, 39.	1.2	30
45	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
46	Neuron Time Warp. , 2014, , .		2
47	Modeling Molecular Pathways of Neuronal Ischemia. Progress in Molecular Biology and Translational Science, 2014, 123, 249-275.	0.9	16
48	Neocortical Simulation for Epilepsy Surgery Guidance: Localization and Intervention. , 2014, , 339-349.		0
49	Motor Cortex Microcircuit Simulation Based on Brain Activity Mapping. Neural Computation, 2014, 26, 1239-1262.	1.3	18
50	Network-level effects of optogenetic stimulation in a computer model of macaque primary motor cortex. BMC Neuroscience, 2014, 15, .	0.8	2
51	Calcium regulation of HCN supports persistent activity associated with working memory: a multiscale model of prefrontal cortex. BMC Neuroscience, 2014, 15, .	0.8	5
52	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
53	Multiscale modeling for clinical translation in neuropsychiatric disease. Journal of Computational Surgery, 2014, 1, .	0.6	9
54	Multiscale modeling of cortical information flow in Parkinson's disease. BMC Neuroscience, 2013, 14, .	0.8	0

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55	Water-tight membranes from neuronal morphology files. Journal of Neuroscience Methods, 2013, 220, 167-178.	1.3	16
56	Reinforcement Learning of Two-Joint Virtual Arm Reaching in a Computer Model of Sensorimotor Cortex. Neural Computation, 2013, 25, 3263-3293.	1.3	36
57	Computational Neuroscience of Synapses and Neurons. , 2013, , 2275-2299.		1
58	Computational Neuroscience of Neuronal Networks. , 2013, , 2301-2331.		0
59	Virtual musculoskeletal arm and robotic arm driven by a biomimetic model of sensorimotor cortex with reinforcement learning. , 2013, , .		8
60	Cortical Plasticity Induced by Spike-Triggered Microstimulation in Primate Somatosensory Cortex. PLoS ONE, 2013, 8, e57453.	1.1	35
61	Cortical information flow in Parkinson's disease: a composite network/field model. Frontiers in Computational Neuroscience, 2013, 7, 39.	1.2	43
62	Reaction-diffusion in the NEURON simulator. Frontiers in Neuroinformatics, 2013, 7, 28.	1.3	65
63	Ih Tunes Theta/Gamma Oscillations and Cross-Frequency Coupling In an In Silico CA3 Model. PLoS ONE, 2013, 8, e76285.	1.1	33
64	Dynamically Repairing and Replacing Neural Networks: Using Hybrid Computational and Biological Tools. IEEE Pulse, 2012, 3, 57-59.	0.1	13
65	Input-to-output transformation in a model of the rat hippocampal CA1 network. Frontiers in Computational Neuroscience, 2012, 6, 57.	1.2	6
66	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
67	Ih modulates theta rhythm and synchrony in computer model of CA3. BMC Neuroscience, 2012, 13, .	0.8	0
68	CPP alters theta/gamma oscillations in rat hippocampus: simulation and experiment. BMC Neuroscience, 2012, 13, .	0.8	2
69	Reinforcement Learning of Targeted Movement in a Spiking Neuronal Model of Motor Cortex. PLoS ONE, 2012, 7, e47251.	1.1	33
70	Training oscillatory dynamics with spike-timing-dependent plasticity in a computer model of neocortex. , 2011, , .		7
71	Emergence of Physiological Oscillation Frequencies in a Computer Model of Neocortex. Frontiers in Computational Neuroscience, 2011, 5, 19.	1.2	63
72	Synaptic information transfer in computer models of neocortical columns. Journal of Computational Neuroscience, 2011, 30, 69-84.	0.6	62

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73	Interlaminar Granger causality and alpha oscillations in a model of macaque cortex. BMC Neuroscience, 2011, 12, .	0.8	0
74	Simulating the spread of activation in neocortical circuits. BMC Neuroscience, 2011, 12, .	0.8	0
75	Measuring the Quality of Neuronal Identification in Ensemble Recordings. Journal of Neuroscience, 2011, 31, 16398-16409.	1.7	29
76	Ketamine Disrupts Theta Modulation of Gamma in a Computer Model of Hippocampus. Journal of Neuroscience, 2011, 31, 11733-11743.	1.7	125
77	Interictal EEG Discoordination in a Rat Seizure Model. Journal of Clinical Neurophysiology, 2010, 27, 438-444.	0.9	15
78	Attention-Like Modulation of Hippocampus Place Cell Discharge. Journal of Neuroscience, 2010, 30, 4613-4625.	1.7	144
79	Spectral Method and High-Order Finite Differences for the Nonlinear Cable Equation. Neural Computation, 2010, 22, 2113-2136.	1.3	2
80	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
81	The virtual slice setup. Journal of Neuroscience Methods, 2008, 171, 309-315.	1.3	13
82	Computer modelling of epilepsy. Nature Reviews Neuroscience, 2008, 9, 626-637.	4.9	247
83	Just-in-Time Connectivity for Large Spiking Networks. Neural Computation, 2008, 20, 2745-2756.	1.3	29
84	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
85	Perisaccadic Parietal and Occipital Gamma Power in Light and in Complete Darkness. Perception, 2008, 37, 419-432.	0.5	14
86	Broadening of Activity with Flow across Neural Structures. Perception, 2008, 37, 401-407.	0.5	5
87	Computational Intelligence in Electrophysiology: Trends and Open Problems. Studies in Computational Intelligence, 2008, , 325-359.	0.7	2
88	Simulation of Large Networks. , 2008, , 3-17.		1
89	Data-Mining of Time-Domain Features from Neural Extracellular Field Data. Studies in Computational Intelligence, 2008, , 119-140.	0.7	4
90	Tonic-Clonic Transitions in Computer Simulation. Journal of Clinical Neurophysiology, 2007, 24, 175-181.	0.9	33

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91	Data Mining Through Simulation. Methods in Molecular Biology, 2007, 401, 155-166.	0.4	5
92	Neural Query System: Data-Mining From Within the NEURON Simulator. Neuroinformatics, 2006, 4, 163-176.	1.5	20
93	Parallel network simulations with NEURON. Journal of Computational Neuroscience, 2006, 21, 119-129.	0.6	170
94	Rule-based firing for network simulations. Neurocomputing, 2006, 69, 1160-1164.	3.5	33
95	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
96	Independent Variable Time-Step Integration of Individual Neurons for Network Simulations. Neural Computation, 2005, 17, 903-921.	1.3	39
97	Computer simulation of epilepsy: Implications for seizure spread and behavioral dysfunction. Epilepsy and Behavior, 2005, 7, 336-344.	0.9	16
98	Hybrid neural networks - combining abstract and realistic neural units. , 2004, 2004, 3996-8.		5
99	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
100	Alternating dominance of NMDA and AMPA for learning and recall: a computer model. NeuroReport, 2001, 12, 2503-2507.	0.6	4
101	An Intrinsic Oscillation in Interneurons of the Rat Lateral Geniculate Nucleus. Journal of Neurophysiology, 1999, 81, 702-711.	0.9	64
102	â– REVIEW : Computer Models of Stroke Recovery: Implications for Neurorehabilitation. Neuroscientist, 1999, 5, 100-111.	2.6	10
103	Modeling Thalamocortical Oscillations. Cerebral Cortex, 1999, , 479-509.	0.6	3
104	Burst firing in identified rat geniculate interneurons. Neuroscience, 1999, 91, 1445-1460.	1.1	82
105	Properties of a hyperpolarization-activated cation current in interneurons in the rat lateral geniculate nucleus. Neuroscience, 1999, 92, 445-457.	1.1	27
106	Chapter 12 Unmasking unmasked: neural dynamics following stroke. Progress in Brain Research, 1999, 121, 203-218.	0.9	8
107	Adapting a feedforward heteroassociative network to Hodgkin-Huxley dynamics. Journal of Computational Neuroscience, 1998, 5, 353-364.	0.6	8
108	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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109	Computer model of antiepileptic effects mediated by alterations in GABAA-mediated inhibition. NeuroReport, 1998, 9, 691-696.	0.6	12
110	Computer model of clonazepamÊ¼s effect in thalamic slice. NeuroReport, 1997, 8, 3339-3343.	0.6	5
111	Inhibition can disrupt hypersynchrony in model neuronal networks. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 1997, 21, 735-750.	2.5	5
112	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
113	Control of slow oscillations in the thalamocortical neuron: a computer model. Neuroscience, 1996, 70, 673-684.	1.1	49
114	Optimizing Synaptic Conductance Calculation for Network Simulations. Neural Computation, 1996, 8, 501-509.	1.3	44
115	Realistic single-neuron modeling. Seminars in Neuroscience, 1992, 4, 15-25.	2.3	4
116	Computer model of ethosuximide's effect on a thalamic neuron. Annals of Neurology, 1992, 32, 131-139.	2.8	21
117	Localization of a leech inhibitory synapse by photo-ablation of individual dendrites. Brain Research, 1989, 504, 43-48.	1.1	13
118	Science Education in the Preclinical Curriculum. Archives of Internal Medicine, 1988, 148, 2508.	4.3	1
119	Modernizing the NEURON Simulator for Sustainability, Portability, and Performance. Frontiers in Neuroinformatics, 0, 16, .	1.3	16